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Ref: #10CFR50.90

CPSES-200501949
Log # TXX-05179

September 16, 2005

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
RESPONSE TO PRELIMINARY REQUEST FOR INFORMATION
RE: LICENSE AMENDMENT REQUEST (LAR) 02-07 FOR
REVISION TO TECHNICAL SPECIFICATION (TS) 3.8.1
SURVEILLANCE REQUIREMENT MODE RESTRICTION NOTES

REF: 1. TXU Power letter, logged TXX-04143, from Mike Blevins to the U.S. Nuclear Regulatory Commission, dated October 6, 2004.

Gentlemen:

This letter is in response to your Request for Additional Information (RAI) concerning our submittal of License Amendment Request 02-07 originally transmitted by Reference 1. These questions were provided by Mr. Mohan Thadani in a Preliminary Request for Additional Information sent on July 28, 2005 and as discussed in the follow-up conference call held on August 23, 2005.

Attachment 1 of this letter contains the NRC staff questions followed by TXU Power's response. As requested during the conference call, a draft copy of CPSES procedure STA-629 and additional related procedures will be made available for your information.

This letter contains no new licensing basis commitments regarding CPSES Units 1 and 2. Should you have any questions, please contact Mr. M. J. Riggs at (254) 897-5218.

D029

I state under penalty of perjury that the foregoing is true and correct.

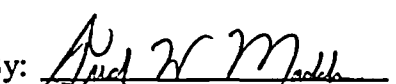
Executed on September 16, 2005.

Sincerely,

TXU Generation Company LP

By: TXU Generation Management Company LLC
Its General Partner

Mike Blevins

By: 
Fred W. Madden
Director, Regulatory Affairs

MJR
Attachment

c - B. S. Mallett, Region IV
M. C. Thadani, NRR
Resident Inspectors, CPSES

**RESPONSE TO PRELIMINARY RAI FOR
SURVEILLANCE REQUIREMENT MODE RESTRICTIONS,
Re: TAC NOs. MC4912 and MC 4913**

Below is the CPSES response to questions provided by Mr. Mohan Thadani in a Preliminary Request for Additional Information sent on July 28, 2005 and discussed in a follow-up conference call held on August 23, 2005.

**NRC Requested Information 1:**

**The staff understands that transmission system operator (TSO) uses a real-time contingency analysis (RTCA) program to determine grid conditions that would make Comanche Peak Steam Electric Station (CPSES) offsite power system inoperable in the event of certain contingencies. Please provide the following information regarding the emergency diesel generator (EDG) online testing:**

**CPSES Response - Background:**

As additional background and clarification, the transmission system operator (TSO) functions for CPSES are performed as follows:

ERCOT (Electric Reliability Council of Texas) is registered with NERC (North American Electric Reliability Council) for the Transmission Operator function with the scope of coverage being inclusive of transmission facilities serving CPSES. TXU ED (Electric Delivery) is registered with ERCOT as the TDSP (Transmission and/or Distribution Service Provider) and performs some Transmission Operator functions.

ERCOT uses its RTCA (updated every fifteen minutes) to identify violations of any critical operating limits that could result from specific contingency events. These critical operating limits include CPSES bus voltage levels and maximum ratings for lines into CPSES. The contingency events include outage of single or double circuit lines into CPSES.

TXU ED has a State Estimator (SE) application that runs every five minutes to ascertain current system conditions of voltage and power flow. SE results can be downloaded and used as a base case for off line study of planned outages or specific contingencies. TXU ED does not as yet have a functioning RTCA application but has plans to implement one in the near future (Fall 2005).

**NRC Requested Information 1(a):**

**Does TSO perform periodic studies to verify that adequate offsite power capability, including adequate CPSES post-trip switchyard voltages (immediate and/or long-term), will be available to CPSES over the projected time frame of the study?**

**CPSES Response 1(a):**

Yes.

- Offsite power system performance characteristics to meet CPSES design and licensing basis requirements are defined in Design Basis Document DBD-EE-038. These requirements are also being incorporated into site procedure STA-629. (The current proposed draft of this procedure will be made available for your review.) STA-629 is part of the CPSES to transmission grid Generation Interconnection Agreement by reference.

  The offsite power system performance characteristics were developed during the electric utility deregulation process and the TSO planning procedure already addresses the CPSES specific planning requirements. These requirements define frequency, voltage, stability, fault level and restoration requirements. The voltage requirements define availability targets and conditions / contingencies including tripping of the CPSES units for which system voltage studies are to be performed. Offsite power system performance characteristics also identify the requirements to communicate to CPSES when CPSES voltage limits are exceeded in real time or could be as a result of a contingency. (Specific details are included in Attachment H of the latest STA-629 draft revision.)

  TSO performs this analysis to confirm compliance to CPSES voltages on a yearly basis and communicates the results of the study to CPSES. The study by TSO also evaluates, for each switchyard, the compliance of offsite power to availability targets for the previous year.

- In addition, the TSO State Estimator (SE) application runs every five minutes to ascertain current system conditions of voltage and power flow. TSO does not as yet have a functioning RTCA application but has plans to implement one in the near future (Fall 2005).

**NRC Requested Information 1(b):**

**Are the key assumptions and parameters of these periodic studies translated into TSO guidance to ensure that the transmission system is operated within the bounds of the analysis?**

**CPSES Response 1(b):**

Yes.

Key assumptions and parameters for planning studies are translated into TSO guides as described in response to item 1(a).

**NRC Requested Information 1(c):**

**If the bounds of the analyses are exceeded, does this condition trigger the notification to CPSES operator?**

**CPSES Response 1(c):**

Yes.

TSO is required to communicate to CPSES when CPSES voltage limits are exceeded. To further enhance this requirement, the STA-629 draft revision also includes guidance in the form of a communication protocol which is approved by both TSO and site personnel.

**NRC Requested Information 1(d):**

**How often is the bounded analysis verified correct and how does this frequency support past performance?**

**CPSES Response 1(d):**

- The adequacy of offsite power system voltage depends on CPSES loading conditions. For maximum loading conditions CPSES analyses consider a grid voltage of 337.4 kV for 345 kV system and 134.5 kV for 138 kV system. For LOCA loading conditions CPSES analyses consider a grid voltage of 333.6 kV for 345 kV system and 132.5 kV for 138 kV system. Conservatively, the lower voltage limits for offsite power are defined as 340 kV for the 345 kV system and 135 kV for the 138 kV system. TSO performs planning studies, as defined in the offsite power system performance characteristics, on a yearly basis. The TSO also performs the evaluation for system availability for the previous year also on a yearly basis. The acceptability of previous years availability targets indicate the adequacy of the previous years planning studies.

- TSO is in the process of implementing a functioning RTCA. The frequency for performing real time contingencies to meet CPSES requirements will be evaluated with TSO and documented in STA-629.

**NRC Requested Information 1(e):**

**Provide a discussion how the grid stability will be maintained during on-line surveillance testing and the system operated within the bounds of the analyses.**

**CPSES Response 1(e):**

- During on-line EDG testing, the Control Room Staff will invoke a heightened level of awareness, operating procedures will be in place to increase the monitoring of alarms and indications that would be indicative of grid malfunctions or disturbances, and the time that the EDG is operated while synchronized to the grid will be limited to the time necessary to perform the surveillance requirements and to safely restore from the tests.

- CPSES procedure OWI-110, "Operations Work Control and Clearance and Safety Tagging," specifically section 6.7.2, already includes the requirement to notify the TSO of any emergent activity resulting in a Safety Monitor (at-power PRA) condition of yellow or red, or

an ORAM (Shutdown PRA) condition of orange or red. This action will alert the transmission system operator that unplanned conditions exist at CPSES having the potential for lost generation or increased nuclear risk. The system operator will evaluate grid activities, specifically on lines feeding CPSES and adjacent switchyards, and may require termination of certain grid related activities to ensure offsite source reliability and the capability of maintaining CPSES offsite power voltages within the CPSES limits if the plant were to trip or require down-power.

- Specifically, CPSES administrative controls and precautions to be exercised for EDG on-line surveillance testing will require that parallel testing of the EDG is not started if weather or grid conditions are not conducive to a stable grid, that close monitoring of grid conditions is maintained during the test, and that the test is terminated if grid conditions may potentially cause a loss of offsite power (LOOP). These controls will include that:

  1. Weather conditions are conducive for performing the SR.

  2. The offsite power supply and switchyard conditions are conducive for performing the SR, which includes ensuring that switchyard access is restricted and that no impactive activity within the switchyard is performed.

  3. No equipment or systems assumed to be available for supporting the performance of the SR are removed from service.

  4. All 6.9 kV safeguards buses (both units) are fed from their respective preferred offsite source.

  5. 6.9 kV bus voltage for the unit requiring the EDG test is $\geq$ 6750 V.

  6. Terminate the test if the Reactor trips.

  7. Terminate the test if system frequency, bus voltage, or EDG load indicate a potential for a degrading grid. Specifically:

     a. Terminate the test if the EDG steady state load $\geq$ 7000 kW or a greater limit established for the test.

     b. Terminate the test if the EDG requires frequent or continuous adjustment to decrease its load in order to maintain the specified load for the EDG test.

     c. Terminate the test if EDG kVAR exceed 5000 kVAR.

     d. Terminate the test if bus steady state voltage decreases $\geq$ 200 V from the voltage at the start of the test.

     e. Terminate the test if bus steady state frequency is $\leq$ 59 Hz.

**NRC Requested Information 1(f):**

**Does your TSO notify CPSES operator when degraded grid condition could occur so CPSES operator could abort the testing?**

**CPSES Response 1(f):**

Yes.

As described in the above response to item 1(c), a communication protocol is established and is included in the STA-629 draft revision.

CPSES Abnormal Conditions procedure ABN-601 also provides operator actions to ensure communications with the transmission system operator during grid related disturbances. Multiple examples are provide throughout ABN-601.

**NRC Requested Information 2:**

**The intent of SR 3.8.1.14 and SR 3.8.1.10 is to ensure that EDG will perform its intended function during design basis event. SR 3.8.1.14 and SR 3.8.1.10 currently are not required to be performed at a power factor based on actual loading condition. Based on the review of the corresponding BASES section, the staff finds that these tests are being performed at the KW ratings. Since the proposed changes will allow these SRs to be performed at power when the system voltage will be relatively lower than at shutdown, please provide your justification for not performing these SRs at the expected power factor based on actual loading conditions. You may refer to TSTF-276-A, Rev. 2 which provides guidance when the power factor cannot be achieved during testing.**

**CPSES Response 2:**

Review of the EDG loading calculations indicates that the EDG load power factor (PF) for both the steady state condition and immediately after completion of sequencer loading, is more than 0.85.

CPSES surveillance test procedures MSE-S1(2)-0880 and OPT-214A(B) for SR 3.8.1.10 and SR 3.8.1.14, respectively, require that EDG loading be maintained between 0.80 and 0.85 power factor during the performance of these tests. These procedures include corresponding Emergency DG Operating Limits to provide operators with acceptable power output (kW) and KVAR loading limits that have been developed based on vendor recommendations and plant operating experience.

Consistent with the NUREG-1431 Bases for these SRs that the intent of the power factor requirement is to test the EDG under conditions that are as close as possible to design basis conditions, the current CPSES operating practice achieves the stated intent for the TS power factor requirement by operation of the EDG within the procedural limits, because VARs are adjusted by the operator throughout the period of load adjustments during testing to control them within the prescribe limits during the period of increasing and decreasing EDG load.

**NRC Requested Information 3:**

**Explain if the EDG under test would automatically revert to emergency mode of operation with protective systems bypassed, if a valid emergency signal is received. Describe the change in response time if the EDG under test was automatically called upon to energize the safety bus in relation to energizing the bus from standby conditions.**

**CPSES Response 3:**

On receipt of a Safety Injection Actuation Signal (SIAS), which is a valid emergency signal, the under test EDG breaker will trip to isolate the EDG from the offsite power source.

The SIAS will automatically place the EDG in emergency mode in which all protective systems except overspeed and generator differential protection are bypassed, and the EDG will continue to run.

If the offsite power is lost concurrent with the receipt of SIAS, the EDG breaker will close to the bus after receipt of the EDG breaker close permissive.

The EDG breaker close permissive is provided to allow the bus residual voltage to decay to an acceptable level to prevent over voltage exposure of connected bus loads on energization by the EDG.

The EDG breaker close permissive is delayed 2.2 seconds after loss of offsite power and opening of both preferred and alternate source breakers to the bus. The response time of the under test EDG to energize the bus in 2.2 seconds after loss of offsite power, is much faster than the response time of 10 seconds to energize the bus when standby EDG is to be started by the loss of offsite power signal and the EDG takes 10 seconds to attain required voltage and speed to allow EDG breaker closure.

**Referenced Procedures:**

1. Station Administration procedure STA-629, "Switchyard Control," latest draft revision (9/8/2005)
2. OWI-110, "Operations Work Control and Clearance and Safety Tagging," Rev.13
3. Abnormal Conditions procedure ABN-601, "RESPONSE TO A 138/345 KV SYSTEM MALFUNCTION," Rev. 9