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Ref: 10CFR50.54
GL 2006-02

CPSES-200601160
Log # TXX-06096

June 29, 2006

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
REVISED RESPONSE TO THE 60-DAY RESPONSE TO NRC GENERIC LETTER 2006-02, "GRID RELIABILITY AND THE IMPACT ON PLANT RISK AND THE OPERABILITY OF OFFSITE POWER"

REF: 1. TXU Power letter, logged TXX-06056, from Mike Blevins to the U.S. Nuclear Regulatory Commission, dated April 3, 2006.

Gentlemen:

By means of the Attachment to this letter, TXU Generation Company LP (TXU Power) submits its revised response to the Nuclear Regulatory Commission's request for information pursuant to Generic Letter 2006-02, "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power."

CPSES may have created some ambiguity in our original response to the GL; consequently, our effort here is provide greater clarity. The response reflects the communication interface agreements and as these agreements evolve, they may be revised. TXU Power is committed to effective communications.

Some of the questions in GL 2006-02, however, seek information about analyses, procedures, and activities concerning grid reliability for which CPSES does not have first-hand knowledge, are beyond the control of CPSES, and cannot be verified or validated by CPSES. In providing information responsive to such questions, CPSES makes no representation as to its accuracy or completeness.

Should you have any questions, please contact Ms. Tamera Ervin at (254) 897-6902.

This communication contains no new or revised licensing basis commitments.

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

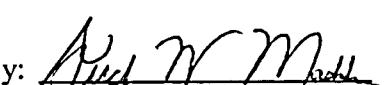
Executed on 29 June, 2006

Sincerely,

TXU Generation Company LP

By: TXU Generation Management Company LLC
Its General Partner

Mike Blevins

By: 
Fred W. Madden
Director, Regulatory Affairs

TJE

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

Attachment to TXX-06096

TXU Power's Revised Response to
NRC Generic Letter 2006-02
"GRID RELIABILITY AND THE IMPACT ON PLANT RISK
AND THE OPERABILITY OF OFFSITE POWER"

| **Use of protocols between the NPP licensee and the TSO, ISO, or RC/RA and the use of analysis tools by TSOs to assist NPP licensee in monitoring grid conditions to determine the operability of offsite power systems under plant Technical Specifications.**<br><br>**GDC 17, 10 CFR Part 50, Appendix A, requires that licensees minimize the probability of the loss of power from the transmission network given a loss of the power generated by the nuclear power unit(s).** | |
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| GENERIC LETTER QUESTIONS | COMANCHE PEAK STEAM ELECTRIC STATION'S RESPONSE |
| **1. Use of protocols between the NPP licensee and the TSO, ISO, or RC/RA to assist the NPP licensee in monitoring grid conditions to determine the operability of offsite power systems under plant Technical Specifications.** | |
| (a) Do you have a formal agreement or protocol with your TSO? | As additional background and clarification, the transmission system operator (TSO) functions for CPSES (Comanche Peak Steam Electric Station)are performed as follows:<br><br>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 also known as Transmission Service Provider (TSP)) and performs some Transmission Operator functions. CPSES also has a Qualified Scheduling Entity (QSE) which provides the primary interface for market participants (CPSES is a market participant). ERCOT may issue communications in the form of Notices, Advisories, Alerts and Emergency Notices. These communications may relate to weather, transmission, distribution and/or generation information. Additionally, ERCOT may provide emergency notification if it is recognized that the system frequency is expected to stay outside nominal 60 Hz for a sustained duration longer than normal transients. These communications issued by ERCOT informs all TSPs and QSEs of the current operating situation and CPSES receives these notifications via CPSES' QSE. CPSES' TSP utilizes analysis tools to predict grid |

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| | conditions that would affect CPSES and communicates the applicable results and conclusions to CPSES. The TSP monitors the voltage in real time and provides notice to CPSES, via the QSE or directly, of any normal voltage deviations that cannot be corrected within 30 minutes. Additionally, the TSP notifies CPSES of any transmission line or equipment status that will impact CPSES. Plant Procedure STA-629, "Switchyard Control" is referenced in the Generation Interconnect Agreement between CPSES and the TSP and is agreed upon by both parties.<br><br>Yes. Communications protocols between CPSES and the TSO are delineated in plant procedure STA-629.<br><br>STA- 629 defines responsibilities for the design, maintenance, document control, operation, and grid related notifications that are needed to control the various aspects of the CPSES switchyards, and to establish the necessary interfaces between CPSES and the transmission grid system operators. |
| (b) Describe any grid conditions that would trigger a notification <u>from the TSO</u> to the NPP licensee and if there is a time period required for the notification. | Per STA-629, the following conditions would require notification:<br>1. Time and duration of upcoming CPSES line outages.<br>2. Significant degradations in CPSES line reliability.<br>3. Normal voltage deviations, at CPSES switchyards, that cannot be corrected within 30 minutes.<br><br>Frequency transients outside nominal 60 Hz longer than normal durations are also communicated by the TSO.<br><br>The protocols and the TSO do not delineate a specific time requirement for notification. Notifications are timely. |

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| (c) Describe any grid conditions that would cause the NPP licensee to contact the TSO.<br><br>Describe the procedures associated with such a communication. If you do not have procedures, describe how you assess grid conditions that may cause the NPP licensee to contact the TSO. | If switchyard voltages are outside the required range of 135 kV to 144 kV for the 138 kV switchyard and 340 kV to 361 kV for the 345 kV switchyard, station operation procedure ALM-0140, "Alarm Procedure X-ALB-14" directs Station Operators to procedure ABN-601, "Response to 138/345 kV System Malfunction." ABN-601 directs NPP Operators to contact the TSO to resolve the voltage problem. ABN-601 also directs NPP Operations to initiate contact with the TSO for frequency degradation. |
| (d) Describe how NPP operators are trained and tested on the use of the procedures or assessing grid conditions in question 1(c). | As part of ongoing biennial requalification training, Operations personnel attend training on procedures and are challenged in simulator scenarios dealing with the following events and conditions:<br><br>EOP-0.0, "Reactor Trip Response"<br>ECA-0.0, "Loss of All AC Power"<br>ABN-601, "Response to a 138/345 KV System Malfunction"<br>ABN-602, "Response to a 6900/480v System Malfunction"<br>ABN-402, "Main Generator Malfunction"<br>IPO-003, "Power Operation"<br>OPT-215, "Electrical Systems Operability"<br><br>Operations control of maintenance-related activities associated with offsite power systems are reviewed and controlled per the following station procedures:<br>STA-629, "Switchyard Control"<br>STA-617, "High Voltage Switching and Tagging"<br><br>Initial License training and practical factor check outs cover many of these tasks. When deficiencies or process improvements are identified, the Required Reading and Lessons Learned programs are utilized to share the desired information with the appropriate members of the Operations team. |

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| (e) If you do not have a formal agreement or protocol with your TSO, describe why you believe you continue to comply with the provisions of GDC 17 as stated above, or describe what actions you intend to take to assure compliance with GDC 17. | As discussed above, CPSES has a formal agreement with the TSO. |
| (f) If you have an existing formal interconnection agreement or protocol that ensures adequate communication and coordination between the NPP licensee and the TSO, describe whether this agreement or protocol requires that you be promptly notified when the conditions of the surrounding grid could result in degraded voltage (i.e., below TS nominal trip setpoint value requirements; including NPP licensees using allowable value in its TSs)<br><br>or<br><br>LOOP after a trip of the reactor unit(s). | Station procedure STA-629 communication protocols require notification for the following condition which could result in degraded voltage (this also includes LOOP after trip conditions):<br><br>1. Switchyard voltages outside the normal range of 138-143 kV (138 kV switchyard) or 342-358 kV (345 kV switchyard) for more than 30 minutes. It may be noted that the TS degraded voltage nominal set points reflected on switchyard voltages are approximately 133 kV (138 kV switchyard) or 333 kV (345 kV switchyard).<br><br>Offsite power steady state frequency outside nominal 60 Hz is also communicated by the TSO. |
| (g) Describe the low switchyard voltage conditions that would initiate operation of plant degraded voltage protection. | The actual switchyard voltage levels at which the plant degraded voltage protection would be initiated depend on loading condition of the plant. It is estimated that the CPSES Technical Specification (TS) degraded under-voltage (UV) protection may actuate, for plant full load conditions, when CPSES switchyard voltages drop to approximately 333(133) kV. |

| GENERIC LETTER QUESTIONS | COMANCHE PEAK STEAM ELECTRIC STATION'S RESPONSE |
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| **2. Use of criteria and methodologies to assess whether the offsite power system will become inoperable as a result of a trip of your NPP.** | |
| (a) Does your NPP's TSO use <u>any analysis tools</u>, an online analytical transmission system studies program, or other equivalent predictive methods to determine the grid conditions that would make the NPP offsite power system inoperable during various contingencies? <u>If available</u> to you, please provide a brief description of the analysis tool that is used by the TSO. | Yes, the TSO makes use of analysis tools to predict grid conditions that would result in CPSES offsite power system voltages outside the limits required by CPSES. The tools presently used by the TSO include a grid State Estimator and Supervisory Control And Data Acquisition (SCADA) system in conjunction with periodic planning studies including contingencies. It is CPSES' understanding that the TSO is also in the process of installing a real-time contingency analysis (RTCA) tool.<br><br>The TSO also performs Planning Studies to evaluate CPSES specific contingencies and other contingencies that may impact CPSES switchyard voltages to assure that the voltages at CPSES switchyard remain within the limits required by CPSES. CPSES understands that the implementation of a RTCA tool by the TSO will also utilize the CPSES specific contingencies.<br><br>The analyzed contingencies that are considered against the CPSES switchyard voltage requirements include:<br>• All contingencies that may significantly impact CPSES switchyard voltages.<br>• Trip of a CPSES unit, in addition to other normal credible contingencies. Trip of a CPSES unit is considered even if the other unit is in outage or otherwise off line.<br>• Simultaneous loss of a CPSES unit and the most critical transmission line to CPSES.<br>• Simultaneous loss of a CPSES unit and the most critical generator to CPSES.<br><br>If, as a result of a contingency, the voltage is expected to be outside the |

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| | limits required by CPSES, then the TSO identifies appropriate actions necessary to assure that the contingency will not result in CPSES switchyard voltages to be outside the limits required by CPSES, and informs CPSES about the condition and the appropriate actions being taken.<br><br>It is noted that the evaluations and analytical tools used by the TSO are to determine whether CPSES switchyard post-contingency voltages will remain within the CPSES required limits. On identification by the TSO that post-contingency voltages could be outside the limits required by CPSES, CPSES will assess the impact of these voltages on functionality of the offsite source. |
| (b) Does your NPP's TSO use an analysis tool as the basis for notifying the NPP licensee when such a condition is identified? If not, how does the TSO determine if conditions on the grid warrant NPP licensee notification? | Yes, the TSO uses the analysis tools (see response to 2(a)), in conjunction with procedures, as the basis for determining when conditions warrant CPSES notification.<br><br>CPSES understands that after the implementation of RTCA the TSO will provide notification to CPSES (after validation of RTCA results) when the post-contingency CPSES switchyard voltages could be outside the CPSES required limits. |
| (c) If your TSO uses an analysis tool, would the analysis tool identify a condition in which a trip of the NPP would result in switchyard voltages (immediate and/or long-term) falling below TS nominal trip setpoint value requirements (including NPP licensees using allowable value in its TSs) and consequent actuation of plant degraded voltage protection? | Yes, the TSO analysis tools are capable of identifying conditions when the trip of a CPSES unit could cause CPSES switchyard voltages to be outside the required limits.<br><br>The TS nominal trip set points are defined for CPSES power distribution bus voltages and not for switchyard voltages. The required CPSES switchyard voltages, based on these TS voltages, include margin.<br><br>The analytical tools used by the TSO are to determine whether CPSES switchyard post contingency voltages would remain within the CPSES required limits. |

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| If not, discuss how such a condition would be identified on the grid. | On identification by the TSO of post contingency voltages outside the limits required by CPSES, CPSES will assess the impact of these voltages on functionality of the offsite source, and the impact on TS UV relays nominal trip set point and TS allowable voltages.<br><br>Thus, the TSO analysis results, in conjunction with CPSES evaluations, will identify conditions which would actuate the CPSES degraded voltage protection logic to initiate separation from a degraded offsite power source. |
| (d) If your TSO uses an analysis tool, how frequently does the analysis tool program update? | The TSO uses the grid State Estimator and SCADA systems in conjunction with planning studies to assess the impact of contingencies, including CPSES specific contingencies on CPSES switchyard voltages. The TSO performs transmission system planning studies on a yearly basis to ensure that CPSES switchyard required voltages will be maintained within the appropriate ranges under normal conditions and in the event of contingencies. Additional studies to assess CPSES switchyard voltages may be performed if un-anticipated grid conditions are recognized that could significantly affect CPSES switchyard voltages.<br><br>CPSES understands that the RTCA system, being implemented by the TSO, will also address the CPSES specific contingencies. The RTCA, specific to CPSES contingencies, will be updated on 15-minute intervals. |
| (e) Provide details of analysis tool-identified contingency conditions that would trigger an NPP licensee notification from the TSO. | A TSO notification would be triggered by predicted post-CPSES trip switchyard voltages based on planning studies. Bounding planning studies are performed to include the CPSES specific contingency requirements. CPSES understands that the RTCA, being implemented by the TSO, will also address the CPSES specific contingencies.<br><br>The analyzed contingencies that are considered against the CPSES |

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| | switchyard voltage requirements include:<br><br>• All contingencies that may significantly impact CPSES switchyard voltages.<br>• Trip of a CPSES unit, in addition to other normal credible contingencies. Trip of a CPSES unit is considered even if the other unit is in outage or otherwise off line.<br>• Simultaneous loss of a CPSES unit and the most critical transmission line to CPSES.<br>• Simultaneous loss of a CPSES unit and the most critical generator to CPSES.<br><br>If the CPSES switchyard voltage requirements can not be met under the contingencies considered, CPSES will be notified by the TSO. |
| (f) If an interface agreement exists between the TSO and the NPP licensee, does it require that the NPP licensee be notified of periods when the TSO is unable to determine if offsite power voltage and capacity could be inadequate? If so, how does the NPP licensee determine that the offsite power would remain operable when such a notification is received? | The agreement requires that the TSO normally shall maintain voltage at CPSES switchyard at values such that a single contingency will not result in CPSES switchyard voltage being outside the limits required by CPSES. It is CPSES' understanding that, under this requirement the TSO would notify CPSES of periods when the TSO is unable to determine if CPSES required switchyard voltage limits, as a result of a contingency, can continue to be met.<br><br>Under the agreement, the TSO is also required to monitor the voltage in real time and provide notice to CPSES of any normal voltage deviations that cannot be corrected within 30 minutes.<br><br>The switchyard voltage limits required by CPSES are established by CPSES to include margin to TS UV nominal set points reflected at switchyard voltages. The switchyard normal voltages are determined by the TSO and set above the required CPSES switchyard voltage to add margin to the limits required by CPSES. CPSES determines the functionality of offsite power based on the recognition of these margins and the TSO's notification of switchyard voltages. |

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| (g) After an unscheduled inadvertent trip of the NPP, are the resultant switchyard voltages verified by procedure to be bounded by the voltages predicted by the analysis tool? | The analyses to determine the post-trip voltages at CPSES switchyards are performed with conservative contingencies. The contingencies considered, in addition to the tripping of CPSES units, are tripping of a grid system generator or loss of a line critical to CPSES. These analyses result in conservative and bounding voltage conditions for CPSES switchyards. CPSES has not experienced switchyard voltages outside the analyzed values after an unscheduled inadvertent trip of a CPSES unit. Consideration of conservative contingencies to provide bounding analyses eliminates the need for validation of post trip voltages. Routine validation by procedure for post event analysis to check accuracy of the TSO study model is not required. |
| (h) If an analysis tool is not available to the NPP licensee's TSO, do you know if there are any plans for the TSO to obtain one? If so, when? | This question is not applicable to CPSES since the TSO analysis tools are presently in use. CPSES understands that the TSO is also in the process of installing a RTCA tool. |
| (i) If an analysis tool is not available, does your TSO perform periodic studies to verify that adequate offsite power capability, including adequate NPP post-trip switchyard voltages (immediate and/or long-term), will be available to the NPP licensee over the projected timeframe of the study?<br><br>(a) 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 analyses?<br><br>(b) If the bounds of the analyses are exceeded, does this condition trigger the notification provisions discussed in question 1 above? | Not applicable to CPSES since the TSO analysis tools are presently in use. However, the TSO performs periodic studies for CPSES, in addition to the planning studies to define the bases for planning analysis. Furthermore, CPSES understands that the TSO is in the process of installing a RTCA tool.<br><br>(a) Key assumptions and parameters for these analyses specific to CPSES are translated into TSO procedural guidance to ensure that the transmission system is operated within the bounds of the analyses. It is CPSES' understanding that these key assumptions and parameters will also be accounted for in the RTCA tool.<br><br>(b) Grid operation that may cause the CPSES switchyard voltages to be outside the CPSES requirements does initiate CPSES notification. |

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| (j) If your TSO does not use, or you do not have access to the results of an analysis tool, or your TSO does not perform and make available to you periodic studies that determine the adequacy of offsite power capability, please describe why you believe you comply with the provisions of GDC 17 as stated above, or describe what compensatory actions you intend to take to ensure that the offsite power system will be sufficiently reliable and remain operable with high probability following a trip of your NPP. | CPSES' TSO utilizes analysis tools and communicates the applicable results and conclusions to CPSES. |

| GENERIC LETTER QUESTIONS | COMANCHE PEAK STEAM ELECTRIC STATION'S RESPONSE |
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| **3. Use of criteria and methodologies to assess whether the NPP's offsite power system and safety-related components will remain operable when switchyard voltages are inadequate.** | |
| (a) If the TSO notifies the NPP operator that<br><br>a trip of the NPP, or<br>• the loss of the most critical transmission line or<br>• the largest supply to the grid<br><br>would result in switchyard voltages (immediate and/or long-term) below TS nominal trip setpoint value requirements (including NPP licensees using allowable value in its TSs) and would actuate plant degraded voltage protection, is the NPP offsite power system declared inoperable under the plant TSs? If not, why not? | Postulated contingencies on the transmission grid are not used as a basis for operability determinations since:<br>• Such events are only postulated and have not actually occurred,<br>• The offsite power sources remain capable of effecting a safe shutdown and mitigating the effects of an accident in accordance with the limiting conditions for operation (LCO) criteria of Regulatory Guide 1.93, "Availability of Electric Power Sources," and<br>• The offsite power system meets the capacity and capability requirements specified in GDC 17 to supply power in the event of anticipated operational occurrences and postulated accidents.<br><br>However, CPSES requires, as part of the interface agreement, the TSO to study a simultaneous loss of a CPSES unit and the most critical transmission line to CPSES and a simultaneous loss of a CPSES unit and the most critical generator to CPSES. As a result of these or other contingencies required to be evaluated, the TSO must maintain CPSES switchyard voltages within the CPSES requirements.<br><br>The CPSES operator would conservatively declare the applicable offsite power circuit inoperable, on identification by the TSO that CPSES switchyard voltages may not be maintained at the required values if loss of a CPSES unit occurs. Evaluation of post-contingency and real-time switchyard voltages on TS allowable and TS degraded relay settings is performed by CPSES. If it is determined that the offsite power system (i.e., the grid) is functional, the LCO is exited. |

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| (b) If onsite safety-related equipment (e.g., emergency diesel generators or safety-related motors) is lost when subjected to a double sequencing (LOCA with delayed LOOP event) as a result of the anticipated system performance and is incapable of performing its safety functions as a result of responding to an emergency actuation signal during this condition, is the equipment considered inoperable? If not, why not? | CPSES licensing basis does not require postulation of delayed LOOP after LOCA. However, if onsite safety related equipment is lost, then the equipment is declared inoperable as specified by plant Technical Specifications. |
| (c) Describe your evaluation of onsite safety-related equipment to determine whether it will operate as designed during the condition described in question 3(b). | CPSES licensing basis requires postulation of a LOOP at the initiation of an event. The assumption of a design basis accident with a non-concurrent LOOP is beyond the licensing basis.<br><br>However, CPSES equipment is designed to withstand more than one start as discussed below:<br><br>During normal "at-power" operation, one train of components are in operation to supply the required plant loads. These are the Charging (high head injection) Pump, the Component Cooling Water Pump, and the Service Water Pump. The other train Service Water Pump is also in operation.<br><br>The normal starting duty limitations for all large motors are for two consecutive starts from ambient conditions, except the Service Water Pumps, which have three consecutive starts.<br><br>Large motor, two consecutive starts would be within their normal starting duty limitations for the non-running components and the Service Water Pumps.<br><br>The two previous running components, Centrifugal Charging Pump and Component Cooling Water Pump, have normal starting duty limitations of one additional start after operating at rated temperatures. |

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| (d) If the NPP licensee is notified by the TSO of other grid conditions that may impair the capability or availability of offsite power, are any plant TS action statements entered? If so, please identify them. | Postulated contingencies on the transmission grid are not used as a basis for operability determinations since:<br>• Such events are only postulated and have not actually occurred,<br>• The offsite power sources remain capable of effecting a safe shutdown and mitigating the effects of an accident in accordance with the limiting conditions for operation (LCO) criteria of Regulatory Guide 1.93, and<br>• The offsite power system meets the capacity and capability requirements specified in GDC 17 to supply power in the event of anticipated operational occurrences and postulated accidents.<br><br>However, CPSES requires the TSO to perform studies to evaluate all contingencies that may significantly impact CPSES switchyard voltages.<br><br>When the TSO notifies CPSES that grid conditions exist such that an inadequate voltage may exist due to degraded grid conditions and the grid State Estimator is not available to predict grid conditions following a unit trip, plant procedures direct the operator to conservatively declare offsite power sources inoperable (i.e., the applicable TS action statement is entered).<br><br>Action Statements from the following Technical Specifications Limiting Condition for Operation (LCO) conditions may be entered:<br><br>Modes 1-4, TS 3.8.1<br>Condition A.: One required offsite circuit inoperable.<br>Condition C.: Two required offsite circuit inoperable.<br><br>Modes 5 & 6, TS 3.8.2<br>Condition A.: One required offsite circuit inoperable. |

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| (e) If you believe your plant TSs do not require you to declare your offsite power system or safety-related equipment inoperable in any of these circumstances, explain why you believe you comply with the provisions of GDC 17 and your plant TSs, or describe what compensatory actions you intend to take to ensure that the offsite power system and safety-related components will remain operable when switchyard voltages are inadequate. | Not applicable. CPSES would conservatively declare offsite power sources inoperable or safety related components inoperable for the conditions identified in responses 3.a through 3.d above. |
| (f) Describe if and how NPP operators are trained and tested on the compensatory actions mentioned in your answers to questions 3(a) through (e). | The accredited training program at CPSES utilizes a systematic approach to training. The Nuclear Training Department has incorporated the recommendations provided in SOER 99-1 and SOER 99-1 Addendum 1 into both the Licensed Operator Initial and Continual Training Program classroom and simulator sessions. This training is conducted on a biennial basis.<br><br>Joint training was conducted between TSO grid operators and CPSES plant operators. The training consisted of both classroom and simulator portions. Classroom training included discussions of the actions that would be taken by the TSO when grid instability exists. The effects of a CPSES unit trip on expected switchyard voltages and procedures dealing with voltage problems on the grid were also discussed and the conservative entry into a LCO condition was stressed. |

| GENERIC LETTER QUESTIONS | COMANCHE PEAK STEAM ELECTRIC STATION'S RESPONSE |
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| **4. Use of criteria and methodologies to assess whether the offsite power system will remain operable following a trip of your NPP.** | |
| (a) Do the NPP operators have any guidance or procedures in plant TS bases sections, the final safety analysis report, or plant procedures regarding situations in which the condition of plant-controlled or -monitored equipment (e.g., voltage regulators, auto tap changing transformers, capacitors, static VAR compensators, main generator voltage regulators) can adversely affect the operability of the NPP offsite power system? If so, describe how the operators are trained and tested on the guidance and procedures. | The main generator voltage regulators are the only plant-controlled or monitored equipment that are designed to control switchyard voltage. Plant procedure ABN-402 "Main Generator Malfunction" directs the operation of this device upon a failure of its automatic capabilities. The procedure has switchyard voltage checks to ensure off site power is operable.<br><br>Control room operators are tested in the biennial training cycle on this scenario. The simulator is utilized to model this problem and to ensure proper operator response to restore generator parameters. |
| (b) If your TS bases sections, the final safety analysis report, and plant procedures do not provide guidance regarding situations in which the condition of plant-controlled or -monitored equipment can adversely affect the operability of the NPP offsite power system, explain why you believe you comply with the provisions of GDC 17 and the plant TSs, or describe what actions you intend to take to provide such guidance or procedures. | Not applicable. CPSES operators are provided the requisite guidance in plant procedure ABN-402 regarding situations in which the condition of the main generator voltage regulators can adversely affect the operability of the offsite power system for CPSES. Voltage alarms and indications are provided for the transformers that power the safety related buses, and alarm response procedure ALM-0140, "Alarm Procedure X-ALB-14," provides guidance on actions to take on a high or low voltage condition. |

| **Use of NPP licensee/TSO protocols and analysis tool by TSOs to assist NPP licensees in monitoring grid conditions for consideration in maintenance risk assessments.**<br><br>**The Maintenance Rule (10 CFR 50.65(a)(4)) requires that licensees assess and manage the increase in risk that may result from proposed maintenance activities before performing them.** | |
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| **GENERIC LETTER QUESTIONS** | **COMANCHE PEAK STEAM ELECTRIC STATION'S RESPONSE** |
| **5. Performance of grid reliability evaluations as part of the maintenance risk assessments required by 10 CFR 50.65(a)(4).** | |
| (a) Is a quantitative or qualitative grid reliability evaluation performed at your NPP as part of the maintenance risk assessment required by 10 CFR 50.65(a)(4) before performing grid-risk-sensitive maintenance activities? This includes surveillances, post-maintenance testing, and preventive and corrective maintenance that could increase the probability of a plant trip or LOOP or impact LOOP or SBO coping capability, for example, before taking a risk-significant piece of equipment (such as an EDG, a battery, a steam-driven pump, an alternate AC power source) out-of-service? | 10CFR 50.65(a)(4) requires performance of a risk assessment prior to maintenance activities. Maintenance is defined broadly and includes surveillances, post maintenance testing, and preventive and corrective maintenance. Relative to increasing the initiating event frequency, such as the frequency of a plant trip, procedural guidance is provided that the following should be considered:<br><br>• The likelihood of an initiating event or accident that would require the performance of the affected safety function.<br><br>• The likelihood that the maintenance activity will significantly increase the frequency of a risk-significant initiating event.<br><br>Prior to performing maintenance activities on the EDG, verification of the offsite electrical power sources and alignment is performed. This verification ensures the operability of the offsite power source through the station transformers to the safety-related buses. Current plant practice includes verification of weather conditions prior to initiating maintenance for the turbine driven AFW pump. The TSO would notify CPSES if a grid advisory was issued and this would be logged and the testing or maintenance evaluated at that time. |

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| (b) Is grid status monitored by some means for the duration of the grid-risk-sensitive maintenance to confirm the continued validity of the risk assessment and is risk reassessed when warranted? If not, how is the risk assessed during grid-risk-sensitive maintenance? | Grid status is monitored by the TSO and emergent grid issues are communicated to the plant through a set of formal protocol agreements. This emergent information is used in the reassessment process, as appropriate.<br><br>Emergent conditions may result in the need for action prior to conduct of the assessment, or could change the conditions of a previously performed assessment. The following guidance applies to this situation:<br><br>• The safety assessment should be performed (or re-evaluated) to address the changed plant conditions on a reasonable schedule commensurate with the safety significance of the condition. Based on the results of the assessment, ongoing or planned maintenance activities may need to be suspended or rescheduled, and systems, structures, and components (SSCs) may need to be returned to service.<br><br>• Performance (or re-evaluation) of the assessment should not interfere with, or delay, the operator and/or maintenance crew from taking timely actions to restore the equipment to service or take compensatory actions. |
| (c) Is there a significant variation in the stress on the grid in the vicinity of your NPP site caused by seasonal loads or maintenance activities associated with critical transmission elements?<br><br>Is there a seasonal variation (or the potential for a seasonal variation) in the LOOP frequency in the local transmission region? | There are no seasonal stresses on the grid surrounding CPSES. Additionally, Electric Power Research Institute's (EPRI) research (EPRI TR-1011759) has concluded that there is no statistically significant seasonal-regional variation in recorded LOOP events from 1997 to 2004.<br><br>Currently, CPSES does not assume seasonal variation in the LOOP frequency when performing its risk assessments. However, if and when these conditions may exist, the plant would be notified by the TSO and the current plant configuration would be revaluated as to the remainder of the scheduled work to account for these conditions. |

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| If the answer to either question is yes, discuss the time of year when the variations occur and their magnitude. | |
| (d) Are known time-related variations in the probability of a LOOP at your plant site considered in the grid-risk-sensitive maintenance evaluation? If not, what is your basis for not considering them? | As part of CPSES' configuration risk management program, time related variations (e.g., grid instability and severe weather) are considered to be potential impacts on the reliability of offsite power and are considered as follows:<br><br>• CPSES considers known time-related variations in the development and maintenance of its unit cycle maintenance plan. This plan defines work windows for major systems and components. The placement of plant components within the schedule considers, in part, the potential for high grid stress (as notified by the TSO) and/or the potential for severe weather.<br><br>• As part of CPSES' configuration risk management program, time related variations (e.g., grid stability, severe weather) are considered a configuration change and assessed as emergent external conditions. During these conditions, increased controls on other plant maintenance may be invoked.<br><br>• There is not a time-related variation applied to LOOP frequency in the CPSES PRA model. No seasonal variation is applied to LOOP frequency (or any other initiator) in the PRA model. |
| (e) Do you have contacts with the TSO to determine current and anticipated grid conditions as part of the grid reliability evaluation performed before conducting grid-risk-sensitive maintenance activities? | A formal communications process exists between CPSES and the TSO that requires notifying CPSES of any current or anticipated degraded grid conditions.<br><br>As a result of the dynamic nature of loads and active generation on the power grid, the TSO is able to comment on the grid conditions shortly before maintenance tasks commence. |

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| (f) Describe any formal agreement or protocol that you have with your TSO to assure that you are promptly alerted to a worsening grid condition that may emerge during a maintenance activity. | Notification occurs whether or not maintenance is on-going. The type of alerts provided to the plant conforms to the accepted practice promulgated by the North American Electric Reliability Council (NERC). Important alerts such as the one suggested by this question would be made to all generators in the control.<br><br>The response to question 1 (particularly items, 1.a, 1.b, 1.c, and 1.f) provides detail regarding formal protocols and notification. |
| (g) Do you contact your TSO periodically for the duration of the grid-risk-sensitive maintenance activities? | CPSES will be contacted by the TSO of emergent grid issues as outlined in the formal communications process. These emergent grid issues would then be re-evaluated as defined in procedure STA-604, "Configuration Risk Management and Work Scheduling" and WCI-203, "Weekly Surveillances / Work Scheduling," with respect to the re-assessment of risk. |
| (h) If you have a formal agreement or protocol with your TSO, describe how NPP operators and maintenance personnel are trained and tested on this formal agreement or protocol. | Training of plant personnel is addressed in the response to questions 1.d and 3.f. |
| (i) If your grid reliability evaluation, performed as part of the maintenance risk assessment required by 10 CFR 50.65(a)(4), does not consider or rely on some arrangement for communication with the TSO, explain why you believe you comply with 10 CFR 50.65(a)(4). | As discussed previously, procedure STA-629 and the protocol letter describe the communication process. Grid reliability is considered as part of CPSES maintenance risk assessment program. Therefore, CPSES complies with 10CFR50.65(a)(4). |
| (j) If risk is not assessed (when warranted) based on continuing communication with the TSO throughout the duration of grid-risk-sensitive maintenance activities, explain why you | Risk is assessed when warranted. Plant Operations, Maintenance, and PRA personnel are well aware of the importance of LOOP sequences and how these sequences could be impacted by plant configuration.<br><br>Risk assessments highlight the condition of the plant and ensure the |

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| believe you have effectively implemented the relevant provisions of the endorsed industry guidance associated with the maintenance rule. | plant staff is aware of the safety implications of maintenance work so that the proper risk management actions can be taken.<br><br>The plant risk assessment is reassessed based on communication with the TSO when or if the known grid conditions change. |
| (k) With respect to questions 5(i) and 5(j), you may, as an alternative, describe what actions you intend to take to ensure that the increase in risk that may result from proposed grid-risk-sensitive activities is assessed before and during grid-risk-sensitive maintenance activities, respectively. | Not applicable. |

| GENERIC LETTER QUESTIONS | COMANCHE PEAK STEAM ELECTRIC STATION'S RESPONSE |
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| **6. Use of risk assessment results, including the results of grid reliability evaluations, in managing maintenance risk, as required by 10 CFR 50.65(a)(4).** | |
| (a) Does the TSO coordinate transmission system maintenance activities that can have an impact on the NPP operation with the NPP operator? | The TSO avoids maintenance activities with an associated high likelihood of contingencies that could adversely impact CPSES switchyard voltages. When such activities are necessary, those will be discussed in advance with CPSES. In accordance with the agreement, unavailability of any of the transmission lines tied to the CPSES switchyard shall be coordinated with CPSES (for planned activities) and communicated to CPSES (for unplanned events). |
| (b) Do you coordinate NPP maintenance activities that can have an impact on the transmission system with the TSO? | The plant provides the TSO with information pertaining to maintenance activities that could impact the transmission system through the formal protocol agreement.<br><br>However, except for the potential of inducing a unit trip, no CPSES work is able to make an appreciable change to the status of the grid in the vicinity of the plant or the grid at-large. |
| (c) Do you consider and implement, if warranted, the rescheduling of grid-risk-sensitive maintenance activities (activities that could (i) increase the likelihood of a plant trip, (ii) increase LOOP probability, or (iii) reduce LOOP or SBO coping capability) under existing, imminent, or worsening degraded grid reliability conditions? | Grid-risk-sensitive maintenance is performed when plant personnel conclude that the risk of the work is small compared to the safety benefit. When the maintenance work is done in response to a Technical Specification, the risk assessment can assist in development of the sequencing of tasks.<br><br>Rescheduling of plant maintenance activities is considered and implemented based on various considerations such as, the projected risk level, emergent plant issues, or current grid conditions.<br><br>If the potential for grid degradation is identified and communicated by the TSO, rescheduling of plant maintenance activities is again reconsidered. This may include the Shift-Manager ordering the plant staff to terminate ongoing tasks and restoration of the safety-related function of the equipment. |

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| (d) If there is an overriding need to perform grid-risk-sensitive maintenance activities under existing or imminent conditions of degraded grid reliability, or continue grid-risk-sensitive maintenance when grid conditions worsen, do you implement appropriate risk management actions? If so, describe the actions that you would take. (These actions could include alternate equipment protection and compensatory measures to limit or minimize risk.) | If there were an overriding need to perform grid-risk-sensitive maintenance, the following actions would be considered.<br><br>• If the proposed configuration is identified as risk significant, Station Management approval is required to proceed.<br><br>• Further consideration is given towards reducing the risk to acceptable levels. These actions include, but are not limited to:<br><br>(i) Reducing the duration of risk significant activities.<br><br>(ii) Developing compensatory and contingency plans.<br><br>(iii) Restoring risk significant equipment to place the plant in an acceptable risk category prior to conducting maintenance activities on SSCs which places the plant in an unacceptable risk.<br><br>(iv) Evaluating affected component and system dependencies.<br><br>(v) Resequencing activities to reduce the risk.<br><br>(vi) Rescheduling the risk significant activities. |
| (e) Describe the actions associated with questions 6(a) through 6(d) above that would be taken, state whether each action is governed by documented procedures and identify the procedures, and explain why these actions are effective and will be consistently accomplished. | The Maintenance Rule requires a proceduralized process.<br><br>The following describes the communications between the plant and the TSO with respect to grid-risk-sensitive maintenance activities or grid stability as defined in procedure STA-629.<br><br>Expected Information Flow:<br><br>a. The TSO will inform the plant Control Room Operators of the |

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| | event and the estimated duration of the line outage, if known.<br><br>b. The official line of communication regarding line status and intentions regarding line restoration is between the TSO and CPSES Control Room.<br><br>c. The TSO should advise the plant prior to making any changes to the line status, if possible, and also ensure that any significant degradation in reliability of remaining lines (both switchyards) are communicated.<br><br>d. The plant Control Room personnel will advise the TSO, when possible, prior to re-aligning station buses as a result of the line loss. This should include obtaining input on line status/reliability before aligning a bus to a different transformer.<br><br>e. The TSO shall immediately notify the plant if it is recognized that the system voltage is expected to be outside the predetermined values.<br><br>Information Sharing Responsibilities:<br><br>a. The TSO provides the plant with information regarding CPSES line status, integrity, known threats, and anticipated changes in configuration.<br><br>b. Information regarding equipment status of equipment belonging to the TSO's transmission districts is also provided to the plant.<br><br>c. The plant supplies updates on plant status to the TSO.<br><br>d. Information, as described above, should be shared prior to |

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| | taking any action that changes the status of interface or supported equipment. Such communication should also occur when updates to existing problems are known, additional degradation occurs, or changes to previously communicated plans arise.<br><br>The information communicated above is used in the plants risk assessment of maintenance activities. The risk-assessment process is summarized below.<br><br>Procedure WCI-203 is the governing procedure for the plant's risk-assessment process, including grid-risk-sensitive maintenance activities or grid stability issues.<br><br>The current plant approach is to evaluate the various configurations that are planned for an individual work week. This includes maintenance and testing activities that have an indirect potential to increase plant risk. This potential to produce an indirect effect upon risk assessment is considered when evaluating the configuration risk. Indirect effects include, but are not limited to, the following:<br><br>• Potential increase for the loss of offsite power.<br>• Potential increase of an Anticipated Transient Without Scram (ATWS).<br>• Potential for spurious Safety Injection signal.<br>• Potential for loss of AC electrical bus.<br>• Potential for loss of Main Feedwater.<br>• Potential for Reactor Trip.<br>• Potential for Turbine Trip.<br><br>Switchyard activities which require switching and tagging or possess the potential to cause a loss of offsite power or loss of Unit generation are evaluated as part of the Configuration Risk Management Program. |

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| | Risk is further minimized by restricting or rescheduling certain sets of activities. These limited activities include switchyard activities conducted concurrent with activities on electrical systems, turbine driven auxiliary feedwater, emergency diesel generator, station service water, and blackout sequencer, or during "reduced inventory" operations.<br><br>In general, grid, weather, or seasonal effects are considered directly in the planned risk assessment, although they may be considered and/or discussed in a qualitative manner.<br><br>Emergent activities, such as severe weather, grid stability, flooding, etc., whether imminent or actually occurring, are assessed in conjunction with current plant configurations as well as the remainder of the planned work. If the proposed configuration is identified as risk significant, then risk mitigating actions are considered. See response 6.d above. |
| (f) Describe how NPP operators and maintenance personnel are trained and tested to assure they can accomplish the actions described in your answers to question 6(e). | Maintenance and Operations personnel are trained and tested, as appropriate, on switchyard control and risk significant activities (i.e., RCS mid-loop operation). Operations personnel are trained in switchyard control and control of risk significant activities as part of their basic qualifications.<br><br>Plant staff, including operations and work control, is trained on the Maintenance Rule and its requirement for performance of risk assessments. This includes procedures WCI-203 and STA-629. |
| (g) If there is no effective coordination between the NPP operator and the TSO regarding transmission system maintenance or NPP maintenance activities, please | This is not applicable to CPSES. There is effective coordination between the plant operator and the TSO regarding transmission system maintenance or plant maintenance activities. Such coordination is in accordance with the protocols, as described herein. |

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| explain why you believe you comply with the provisions of 10 CFR 50.65(a)(4). | |
| (h) If you do not consider and effectively implement appropriate risk management actions during the conditions described above, explain why you believe you effectively addressed the relevant provisions of the associated NRC-endorsed industry guidance. | Not applicable. As discussed in questions 6.a to 6.d, the plant effectively implements appropriate risk management actions. |
| (i) You may, as an alternative to questions 6(g) and 6(h) describe what actions you intend to take to ensure that the increase in risk that may result from grid-risk-sensitive maintenance activities is managed in accordance with 10 CFR 50.65(a)(4). | Not applicable. |

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| **Offsite power restoration procedures in accordance with 10 CFR 50.63 as developed in Section 2 of RG 1.155**<br><br>**Pursuant to 10 CFR 50.63, the NRC requires that each NPP licensed to operate be able to withstand an SBO for a specified duration and recover from the SBO. NRC RG 1.155 gives licensees guidance on developing their approaches for complying with 10 CFR 50.63.** | |
| GENERIC LETTER QUESTIONS | COMANCHE PEAK STEAM ELECTRIC STATION'S RESPONSE |
| **7. Procedures for identifying local power sources[1] that could be made available to resupply your plant following a LOOP event.**<br><br>**Note: Section 2, "Offsite Power," of RG 1.155 (ADAMS Accession No. ML003740034) states:**<br><br>**Procedures should include the actions necessary to restore offsite power and use nearby power sources when offsite power is unavailable. As a minimum, the following potential causes for loss of offsite power should be considered:**<br><br>**- Grid under-voltage and collapse**<br>**- Weather-induced power loss**<br>**- Preferred power distribution system faults that could result in the loss of normal power to essential switchgear buses** | |
| (a) Briefly describe any agreement made with the TSO to identify local power sources that could be made available to re-supply power to your plant following a LOOP event. | Currently, the TSO's blackstart plan includes a nearby plant to supply 138 kV power to CPSES 138 kV switchyard to Unit 1 and 2 safety buses. A "Blackstart Plant" is designated for CPSES use. The TSO procedures provide for the designated blackstart plant to establish the first power island for CPSES. Therefore, CPSES receives priority for re-supplying offsite power. |

[1] This includes items such as nearby or onsite gas turbine generators, portable generators, hydro generators, and black-start fossil power plants.

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| (b) Are your NPP operators trained and tested on identifying and using local power sources to resupply your plant following a LOOP event? If so, describe how. | CPSES completed joint blackstart training with plant and TSO operators. The plant operators were trained and tested as appropriate. The training consisted of both classroom and simulator portions. The TSO has performed the blackstart plan by starting combustion turbines at our blackstart plant and verifying the line can be energized to our plant.<br><br>The LOOP training, which includes both the class room and simulator settings for the NPP operators, is performed on a biennial basis. |
| (c) If you have not established an agreement with your plant's TSO to identify local power sources that could be made available to resupply power to your plant following a LOOP event, explain why you believe you comply with the provisions of 10 CFR 50.63, or describe what actions you intend to take to establish compliance. | Not applicable. CPSES has established an agreement. |

| **Losses of offsite power caused by grid failures at a frequency of equal to or greater than once in 20 site-years in accordance with Table 4 of Regulatory Guide 1.155 for complying with 10 CFR 50.63**<br><br>**Pursuant to 10 CFR 50.63, the NRC requires that each NPP licensed to operate be able to withstand an SBO for a specified duration and recover from the SBO. NRC RG 1.155 gives licensees guidance on developing their approaches for complying with 10 CFR 50.63.** | |
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| **GENERIC LETTER QUESTIONS** | **COMANCHE PEAK STEAM ELECTRIC STATION'S RESPONSE** |
| **8. Maintaining SBO coping capabilities in accordance with 10 CFR 50.63.** | |
| (a) Has your NPP experienced a total LOOP caused by grid failure since the plant's coping duration was initially determined under 10 CFR 50.63? | No, CPSES has not experienced a total LOOP caused by grid failure since the plant's coping duration was first established. |
| (b) If so, have you reevaluated the NPP using the guidance in Table 4 of RG 1.155 to determine if your NPP should be assigned to the P3 offsite power design characteristic group? | Not applicable. |
| (c) If so, what were the results of this reevaluation, and did the initially determined coping duration for the NPP need to be adjusted? | Not applicable. |
| (d) If your NPP has experienced a total LOOP caused by grid failure since the plant's coping duration was initially determined under 10CFR50.63 and has not been reevaluated using the guidance in Table 4 of RG 1.155, explain why you believe you comply with the provisions of 10CFR50.63 as stated above, or describe what actions you intend to take to ensure that the NPP maintains its SBO coping capabilities in accordance with 10CFR50.63. | Not applicable. |

| Actions to ensure compliance | |
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| **GENERIC LETTER QUESTIONS** | **COMANCHE PEAK STEAM ELECTRIC STATION'S RESPONSE** |
| **9. If you determine that any action is warranted to bring your NPP into compliance with NRC regulatory requirements, including TSs, GDC 17, 10 CFR 50.65(a)(4), 10 CFR 50.63, 10 CFR 55.59 or 10 CFR 50.120, describe the schedule for implementing it.** | Not Applicable. CPSES complies with the regulatory requirements delineated in this Generic Letter. |