

WOLF CREEK

NUCLEAR OPERATING CORPORATION

Terry J. Garrett
Vice President, Engineering

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ET 07-0003

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

Reference: 1) Letter WM 06-0011, dated March 31, 2006, from R. A. Muench, WCNOC, to USNRC

2) Letter dated December 5, 2006, from C. Haney, USNRC, to all Licensee

Subject: Docket No. 50-482: Response to NRC Request for Additional Information Regarding NRC Generic Letter 2006-02, "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power"

Gentlemen:

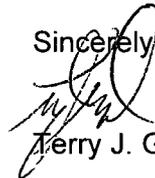
The Reference provided Wolf Creek Nuclear Operating Corporation's (WCNOC) response to the information requested by Generic Letter (GL) 2006-02, "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power."

Reference 2 requested additional information required to resolve GL 2006-02 issues and indicated questions 1, 2, 3, 5, and 6 are applicable to WCNOC. WCNOC's responses to the staff's questions are provided in Attachment I.

The information provided in Attachment I is exempt from public disclosure in accordance with 10 CFR 2.390 and is marked accordingly. Attachment II is a non-proprietary version of Attachment I with the sensitive information removed. Attachment II is suitable for public disclosure.

This letter contains no commitments. If you have any questions concerning this matter, please contact me at (620) 364-4084, or Mr. Kevin Moles at (620) 364-4126.

Sincerely,



Terry J. Garrett

TJG/rlt

cc: J. N. Donohew (NRC), w/a
V. G. Gaddy (NRC), w/a
B. S. Mallett (NRC), w/a
Senior Resident Inspector (NRC), w/a

Response to NRC Request for Additional Information Regarding NRC Generic Letter 2006-02, "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power"

NRC Question 1: Switchyard Minimum Voltage

In response to question 1(g) you did not identify specific minimum switchyard voltage limits (kV) that you supplied to the local transmission entity. Please, provide the following information:

What is the specific minimum acceptable switchyard voltage included in your protocol agreement with your grid operator (GO) and what was the basis for this value? How is this value related to your technical specification degraded voltage relay setpoints?

WCNOC Response:

The Wolf Creek Generating Station (WCGS) switchyard minimum voltage is 97% of 345kV. These limits are described in the Updated Safety Analysis Report, Section 8.2.1.1, "Transmission Network," which states, in part, "KCPL and KG&E maintains voltage between a maximum and minimum range of +5%, -3% of nominal." This normal minimum value is included in the WCNOC Procedure (), ()" This normal minimum value is repeated in the WCNOC Procedure (), "()" and transmission system operator (TSO) Transmission Operations Procedure No. () and No. (). The minimum switchyard value is provided by the TSO in the form of past and present grid stability reports. WCGS calculation XX-E-009 "System NB,NG,PG Undervoltage/Degraded Voltage Relay Setpoints," sets the undervoltage/degraded voltage setpoints for the safety busses, using the minimum switchyard voltage of 97% and maximum accident loading, as discribed in the WCGS Technical Specification 3.3.5 Bases.

NRC Question 2: Loss of Real-Time Contingency Analysis (RTCA) Capability

Your response to question 2(f) did not identify the actions that would be taken if the online grid analysis tool (software program) that you rely upon as an input for offsite power operability became unavailable. If the online grid analysis tool that you use to determine if the offsite power is inoperable becomes unavailable, what actions would you take to determine if post-trip voltages will be acceptable, including any other compensatory actions, until the post-trip voltage is confirmed to be adequate? As an example, the actions may include reliance on a backup (third party's) real-time contingency analysis or similar program, or relying on a grid planning study to confirm that the original assumptions bound the existing grid conditions.

WCNOC Response:

As discussed previously in the response to question 2(f) (Reference 1), a WCNOC corrective action document was being used to track the development of an alternate means of determining offsite power adequacy, other than engineering judgment, when

the Westar contingency analysis program was unavailable. Since the original Generic Letter response (Reference 1) was submitted, that corrective action document has been completed. The TSO now relies on the Southwest Power Pool's contingency analysis program if the TSO's contingency analysis program is unavailable. The Southwest Power Pool's contingency analysis program has been setup to calculate WCGS post-trip switchyard voltages (with LOCA loading) and employs the same alarm set points utilized by the TSO. Transmission Operations Procedure () has been revised to include this alternate contingency analysis program.

NRC Question 3: Verification of RTCA Predicted Post-Trip Voltage

Your response to question 2(g) indicates that you have not verified by procedure the voltages predicted by the online grid analysis tool (software program) with actual real plant trip voltage values. It is important that the programs used for predicting post-trip voltage be verified to be reasonably accurate and conservative. What is the range of accuracy for your GO's contingency analysis program? Why are you confident that the post-trip voltages calculated by the GO's contingency analysis program (that you are using to determine operability of the offsite power system) are reasonably accurate and conservative? What is your standard of acceptance?

WCNOC Response:

As discussed in the response to Generic Letter 2006-02 question 2(g)(Reference 1), if WCGS post-trip switchyard voltages were to drop below the minimum voltage, the contingency analysis program would alarm and the applicable procedures will guide the TSO to take appropriate actions. Procedural verification of post-trip real-time voltages with contingency analysis predicted voltages are not accurate unless Loss of Coolant Accident (LOCA) loading is also present after a unit trip.

The range of accuracy of the TSO contingency analysis program is not available to WCGS, however WCGS' confidence in the accuracy of the contingency analysis program lies within the good practice and expertise of the TSO. Although not procedurally required, the TSO compares known grid operating conditions with results from various studies using the TSO contingency analysis program to confirm program adequacy. The TSO also reviews the program for accurate incorporation of grid enhancements within their territory. Since the TSO uses the contingency analysis program for other reasons other than WCGS post-trip switchyard voltage, there is additional incentive for the TSO to maintain the contingency analysis program.

In addition, a separate contingency analysis program is being used by the Southwest Power Pool and encompasses the majority of the Southwest Power Pool, including WCGS as discussed in the response to question 2 .

NRC Question 5: Seasonal Variation in Grid Stress (Reliability and Loss-of-offsite Power (LOOP) Probability)

Certain regions during certain times of the year (seasonal variations) experience higher grid stress as is indicated in Electric Power Research Institute (EPRI) Report 1011759, Table 4-7, Grid LOOP Adjustment Factor, and NRC NUREG/CR-6890. Do you adjust

the base LOOP frequency in your probabilistic risk assessment (PRA) and Maintenance Rule evaluations for various seasons? If you do not consider seasonal variations in base LOOP frequency in your PRA and Maintenance Rule evaluations, explain why it is acceptable not to do so.

WCNOC Response:

WCGS does not seasonally adjust the Loss of Offsite Power (LOOP) initiating event frequency. WCGS is the sole nuclear power plant in the Southwest Power Pool. Electric Power Research Institute's (EPRI) TR-1011759, dated December 2005, has shown that there is no statistically significant seasonal-regional variation in recorded LOOP events from 1997 to 2004, for WCGS.

WCGS has not experienced a LOOP. WCGS's probabilistic risk assessment LOOP frequency is based upon industry event experience. The current LOOP frequency is based upon fifteen years of U.S. nuclear plant experience of LOOP events. The LOOP frequency is an annualized frequency that accounts for seasonal variations in grid conditions. Determination of the LOOP frequency does not consider partial LOOP events.

With regard to Maintenance Rule evaluations, WCNOC's response to Generic Letter 2006-02 (Reference 1), question 5a, indicated that the Operational Risk Assessment Program utilizes both qualitative and quantitative insights. The response indicated that the Operational Risk Assessment Program identifies compensatory measures, as appropriate for preplanned or emergent activities determined to be risk significant.

NRC Question 6: Interface With Transmission System Operator During Extended Plant Maintenance

How do you interface with your GO when on-going maintenance at the nuclear power plant, that has been previously coordinated with your GO for a definite time frame, gets extended past that planned time frame?

WCNOC Response:

In accordance with WCNOC Procedure () the Control Room is required to notify the TSO of WCGS heightened risk levels that may affect Substation/Grid stability (i.e. potential plant transformer trip). This procedure requires WCGS schedules for sensitive work issues be coordinated with the TSO.

References

1. Letter WM 06-0011, dated March 31, 2006, from R. A. Muench, WCNOC, to USNRC.