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Constellation Energy®
Generation Group, LLC

January 31, 2007

U. S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20555-0001

ATTENTION: Document Control Desk

SUBJECT: **Calvert Cliffs Nuclear Power Plant**
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
Nine Mile Point Nuclear Station
Unit Nos. 1 & 2; Docket Nos. 50-220 & 50-410
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

Generic Letter 2006-02, Response to Request For Additional Information

REFERENCES:
(a) NRC Generic Letter 2006-02, "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power," dated February 1, 2006

(b) Letter from J.M. Heffley (CGG) to Document Control Desk (NRC), "Generic Letter 2006-02, 60-Day Response", dated April 3, 2006

(c) Letter from Catherine Haney (NRC) to Holders of Operating Licenses for Nuclear Reactors, "Request for Additional Information Regarding Resolution of Generic Letter 2006-02, Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power (TAC Nos. MD0974 through MD1050)," dated December 5, 2006

In Reference (a), the Nuclear Regulatory Commission (NRC) requested licensees to respond to a set of questions regarding the impact of electric power grid disturbances as they affect safe operation of nuclear power plants. Reference (b) provided the required response for Calvert Cliffs Nuclear Power Plant, Nine Mile Point Nuclear Station, and R.E. Ginna Nuclear Power Plant. Reference (c) requested additional information, based on the responses provided in Reference (b).

Constellation Generation Group, LLC submits this response on behalf of its three facility licensees, Calvert Cliffs Nuclear Power Plant, Inc., Nine Mile Point Nuclear Station, LLC, and R.E. Ginna Nuclear Power Plant, LLC. Please note that some of the factual information in the attached responses is provided based on input from the several transmission system operators for these licensees: Pennsylvania-New Jersey-Maryland Interconnection, LLC, National Grid, and Rochester Gas and Electric Company.

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Constellation Generation Group maintains working relationships with these entities and has relied upon their provided information.

All facts in the attached responses represent current information as of the date of this letter.

Attachments (1), (2), and (3) contain the responses to the NRC questions set forth in Reference (c).

If you have any questions about this response, please contact Mr. G. H. Montgomery at (410) 897-5172 or George.Montgomery@constellation.com.

Very truly yours,

John M. Heffley
Chief Nuclear Officer

STATE OF NEW YORK :
: **TO WIT**
COUNTY OF WAYNE :

I, John M. Heffley, state that I am Chief Nuclear Officer, Constellation Generation Group, LLC, for Calvert Cliffs Nuclear Power Plant, Inc., Nine Mile Point Nuclear Station, LLC, and R. E. Ginna Nuclear Power Plant, LLC, and that I am duly authorized to execute and file this response on behalf of these companies. To the best of my knowledge and belief, the statements contained in this document are true and correct. To the extent that these statements are not based on my personal knowledge, they are based upon information provided by employees and/or consultants of the companies. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

Subscribed and sworn before me, a Notary Public, in and for the State of New York and County of Monroe, this 31 day of January, 2007.

WITNESS my Hand and Notarial Seal:

Sharon L Miller
Notary Public

My Commission Expires: 12-21-10
Date

JMH/EMT/jmp

SHARON L. MILLER
Notary Public, State of New York
Registration No. 01MI6017755
Monroe County
Commission Expires December 21, 2010

Attachments: (1) Response to Request for Additional Information, GL 2006-02, Calvert Cliffs Nuclear Power Plant
(2) Response to Request for Additional Information, GL 2006-02, Nine Mile Point Nuclear Station
(3) Response to Request for Additional Information, GL 2006-02, R.E. Ginna Nuclear Power Plant

cc: D. V. Pickett, NRC
S. J. Collins, NRC
Resident Inspector, NRC (Calvert Cliffs)
Resident Inspector, NRC (Ginna)
Resident Inspector, NRC (Nine Mile Point)
R. I. McLean, Maryland DNR
J. P. Spath, NYSERDA
P. D. Eddy, NYSOPS

ATTACHMENT (1)

Response to Request for Additional Information, GL 2006-02

Calvert Cliffs Nuclear Power Plant

Constellation Generation Group, LLC
January 31, 2007

Attachment (1)
Response to Request for Additional Information, GL 2006-02
Calvert Cliffs Nuclear Power Plant

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?

The grid operator (GO), Pennsylvania-New Jersey-Maryland Interconnection (PJM), and Transmission System Owner (TSO) dispatchers compare contingency analysis results and coordinate mitigating actions to ensure reliable operations. PJM and TSO dispatchers are required to operate to the most conservative contingency analysis results until differences can be rationalized or resolved. PJM and TSO engineering staff are responsible to resolve any modeling differences observed in real-time and update the model as necessary.

The operability of the offsite power transmission network is not specifically addressed in the Technical Specifications. Therefore, in concurrence with Regulatory Issue Summary 2005-20, "Revision to Guidance Formerly Contained in NRC Generic Letter 91-18, 'Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability' " the system is considered functional or non-functional and is referred to in that way in this response.

3a) *What is the range of accuracy for your GO's contingency analysis program?*

The grid operator (PJM) does not define the range of accuracy of the contingency analysis program.

3b) *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?*

Comparisons made of recent data from CCNPP unit trips have found the post-trip contingency calculated voltage to be within 0.5% of actual recorded values and the calculated voltage deviation was a more conservative value. We consider this to be reasonably accurate and conservative.

The grid operator's (PJM) confidence is based on getting reasonable values from the contingency analysis program as PJM maintains the whole grid system (not just the nuclear plants).

3c) *What is your standard of acceptance?*

We have not established a standard of acceptance for the accuracy of PJM's contingency analysis program. Neither has such a standard been identified to us by the nuclear industry, by the Federal Energy Regulatory Commission or by the North American Electric Reliability Corporation.

Attachment (1)
Response to Request for Additional Information, GL 2006-02
Calvert Cliffs Nuclear Power Plant

Question 4: Identification of applicable single contingencies

In response to question 3(a) you did not identify the loss of other critical transmission elements that may cause the offsite power system (OSP) to degrade, other than the loss of the nuclear unit. If it is possible for specific critical transmission elements (such as other generators, critical transmission line, transformers, capacitor banks, voltage regulators, etc.) to degrade the OSP such that inadequate post-trip voltage could result, have these elements been included in your N–1 contingency analysis? When these elements are included in your GO's contingency analysis model and failure of one of these transmission elements could result in actuation of your degraded voltage grid relay, is the offsite power declared inoperable? If not, what is your basis for not declaring the offsite power inoperable?

4a) *If it is possible for specific critical transmission elements (such as other generators, critical transmission line, transformers, capacitor banks, voltage regulators, etc.) to degrade the OSP such that inadequate post-trip voltage could result, have these elements been included in your N-1 contingency analysis?*

A CCNPP trip is the worst-case contingency for inadequate post-trip voltages. Although degradation of offsite power is considered in the N-1 analysis, there is no anticipated single contingency that will actuate the plant degraded-voltage relays.

4b) *When these elements are included in your GO's contingency analysis model and failure of one of these transmission elements could result in actuation of your degraded voltage grid relay, is the offsite power declared inoperable?*

With CCNPP on-line, no other identified single contingency has the potential to reduce offsite power voltages to inadequate levels. Therefore, offsite power would not be required to be declared non-functional.

4c) *If not, what is your basis for not declaring the offsite power inoperable?*

Since no identified single contingency other than a plant trip has the potential to reduce offsite power voltages to inadequate levels, offsite power would not be considered non-functional for those contingencies. Contingencies other than a plant trip would not affect the ability of the offsite power source to support a safe shutdown of the plant and mitigate the consequences of an accident.

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?

Procedural guidance is provided for notifying PJM prior to maintenance activities, with start time, duration, and expected completion times. Work Management staff communicates with PJM to ensure necessary compensatory actions remain in place when work is extended beyond the original schedule.

ATTACHMENT (2)

Response to Request for Additional Information, GL 2006-02

Nine Mile Point Nuclear Station

Constellation Generation Group, LLC
January 31, 2007

Attachment (2)
Response to Request for Additional Information, GL 2006-02
Nine Mile Point Nuclear Station

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?

The grid operator (GO), National Grid Power Control, utilizes a contingency analysis program (State Estimator). The adequacy of this computer program has been validated by the GO through its successful operation. Although there are no current industry standards that govern the accuracy of contingency analysis models, the GO has indicated that the State Estimator computer program contingencies at the 115 kV voltage level have been demonstrated to be accurate.

3a) *What is the range of accuracy for your GO's contingency analysis program?*

National Grid Power Control does not define the range of accuracy of the contingency analysis program.

3b) *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?*

The computer-generated results for the Nine Mile Point Nuclear Station contingencies have historically been compared to the Transmission Planning Grid Voltage Studies of the same event. This comparison was favorable and substantiated the adequacy of the National Grid Power Control State Estimator contingency program. National Grid Power Control's confidence in contingency analysis results is based on obtaining reasonable results from the State Estimator and contingency analysis routines. We consider the contingency analysis program operated by National Grid Power Control to be reasonably accurate based on their practices and experience and that they use conservatively determined plant loading conditions.

3c) *What is your standard of acceptance?*

We have not established a standard of acceptance for the accuracy of National Grid Power Control's contingency analysis program. Neither has such a standard been identified to us by the nuclear industry, by the Federal Energy Regulatory Commission or by the North American Electric Reliability Corporation.

Attachment (2)
Response to Request for Additional Information, GL 2006-02
Nine Mile Point Nuclear Station

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?

Procedural guidance is provided for notifying National Grid Power Control prior to commencing maintenance activities, with start time, duration and expected completion times. Nine Mile Point work management staff communicates with National Grid Power Control to ensure necessary compensatory actions remain in place when work is extended beyond the original schedule.

ATTACHMENT (3)

Response to Request for Additional Information, GL 2006-02

R.E. Ginna Nuclear Power Plant

Constellation Generation Group, LLC
January 31, 2007

Attachment (3)
Response to Request for Additional Information, GL 2006-02
R.E. Ginna Nuclear Power Plant

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?

R.E. Ginna Nuclear Power Plant (Ginna) was not asked to answer Request for Additional Information Question 3, since we were not included in the Rochester Gas and Electric contingency analysis program (State Estimator) at the time we submitted the response to Generic Letter 2006-02. Since the State Estimator now includes Ginna, a response to Question 3 is provided.

Rochester Gas and Electric now has an on-line contingency analysis program (State Estimator) for determining when real-time grid conditions would not maintain the minimum 115 kV voltage requirement in the event of a Ginna trip.

The State Estimator is run every 15 minutes, followed by analysis with the contingency of a Ginna trip with accident loading conditions. If the solved contingency does not meet the minimum 115 kV voltage requirement for Ginna offsite power, a low voltage alarm is generated. Rochester Gas and Electric validates the alarm, takes initial actions, and reruns the State Estimator and contingency. If the alarm is not cleared, Rochester Gas and Electric notifies Ginna of the low voltage alarm. Operability curves are used if the State Estimator and contingency analysis tools are not available.

3a) *What is the range of accuracy for your GO's contingency analysis program?*

Rochester Gas and Electric does not define the range of accuracy of the contingency analysis program.

3b) *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?*

The State Estimator has only recently been modified to include Ginna. Since that time, one incident has been analyzed. On July 17, 2006 Ginna was notified by Rochester Gas and Electric that the post-trip contingency voltage alarm had been received. Post-event evaluation of the State Estimator and contingency analysis files found the predicted voltage to be conservatively low. Rochester Gas and Electric uses the State Estimator tool for system-wide contingency voltage analysis. To ensure actual post-trip voltages are equal to or higher than predicted by the contingency analysis, conservative assumptions were placed in the model. We consider the contingency analysis program operated by Rochester Gas and Electric to be reasonably accurate based on their practices and experience and that they use conservatively determined plant loading conditions.

3c) *What is your standard of acceptance?*

We have not established a standard of acceptance for the accuracy of Rochester Gas and Electric's contingency analysis program. Neither has such a standard been identified to us by the nuclear industry, by the Federal Energy Regulatory Commission or by the North American Electric Reliability Corporation.

Question 4: Identification of applicable single contingencies

In response to question 3(a) you did not identify the loss of other critical transmission elements that may cause the offsite power system (OSP) to degrade, other than the loss of the nuclear unit. If it is possible for specific critical transmission elements (such as other generators, critical transmission line, transformers, capacitor banks, voltage regulators, etc.) to degrade the OSP such that inadequate post-trip voltage could result, have these elements been included in your N–1 contingency analysis? When these elements are included in your GO's contingency analysis model and failure of one of these transmission elements could result in actuation of your degraded voltage grid relay, is the offsite power declared inoperable? If not, what is your basis for not declaring the offsite power inoperable?

4a) *If it is possible for specific critical transmission elements (such as other generators, critical transmission line, transformers, capacitor banks, voltage regulators, etc.) to degrade the OSP such that inadequate post-trip voltage could result, have these elements been included in your N-1 contingency analysis?*

The contingency of a Ginna trip is the worst-case contingency for inadequate post-trip voltages. There is no identified credible postulated offsite scenario that will actuate the plant degraded-voltage relays, therefore degradation of offsite power is not considered in the N-1 analysis.

4b) *When these elements are included in your GO's contingency analysis model and failure of one of these transmission elements could result in actuation of your degraded voltage grid relay, is the offsite power declared inoperable?*

With Ginna on-line no other identified single contingency has the potential to reduce offsite power voltages to inadequate levels. Therefore, offsite power would not be declared inoperable.

4c) *If not, what is your basis for not declaring the offsite power inoperable?*

Since no identified single contingency other than a plant trip has the potential to reduce offsite power voltages to inadequate levels, offsite power would not be considered inoperable for those contingencies. Contingencies other than a plant trip would not affect the ability of the offsite power source to support a safe shutdown of the plant and mitigate the consequences of an accident.

Attachment (3)
Response to Request for Additional Information, GL 2006-02
R.E. Ginna Nuclear Power Plant

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.

We adjust our grid loss frequency on a seasonal basis. The annual average grid loss frequency is multiplied by the following factor in each season:

Season	Date Range	Factor
Winter	11/15 to 4/1	1.0
Spring	4/1 to 6/1	0.5
Summer	6/1 to 10/1	3.0
Fall	10/1 to 11/15	0.25

These adjustment factors are based on the factors for the Northeast Power Coordinating Council in Table 4-6 of EPRI TR 1011759, and are consistent with (and in some cases more conservative than) the data in Table 4-7 of EPRI TR 1011759. The date ranges have been adjusted from the actual seasonal date changes, to ensure conservatism.

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?

Procedural guidance is provided for notifying Rochester Gas and Electric prior to commencing maintenance activities, with start time, duration and expected completion times. Work Management staff communicates with Rochester Gas and Electric to ensure necessary compensatory actions remain in place when work is extended beyond the original schedule.