

December 5, 2006

Holders of Operating Licenses
for Nuclear Power Reactors
Listed in Enclosure 1

SUBJECT: 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. MD0947 THROUGH MD1050)

On February 1, 2006, the U.S. Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2006-02, "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power." The GL requested licensees to determine if compliance is being maintained with NRC regulatory requirements governing electric power sources and associated personnel training.

The NRC staff has reviewed the licensee responses to GL 2006-02 and has determined that additional information is needed to resolve the issues discussed in the GL. The specific information requested is shown in Enclosure 2. The request for additional information (RAI) questions in Enclosure 2 were formulated from feedback and discussions with the industry (Nuclear Energy Institute and licensees) during a public meeting of June 22, 2006. Note, all of the RAI questions shown in Enclosure 2 do not pertain to each plant. Enclosure 3 provides a table listing the applicable RAI questions for each specific plant. We request that the additional information be provided within 30 days of receipt of this letter.

If you have any questions, please contact Mr. Quynh Nguyen at (301) 415-8123.

Sincerely,

/RA/

Catherine Haney, Director
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. (See Enclosure 1)

Enclosures:

1. Addressee List
2. RAI Questions
3. RAI Table
4. Plant Mailing Lists

cc: See Enclosure 4

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REQUEST FOR ADDITIONAL INFORMATION

RELATED TO GL 2006-02

Offsite Power Operability

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?

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.

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?

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?

Maintenance Rule

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.

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?

RAI TABLE

The following table lists the RAI questions applicable to each facility (as denoted by “x” mark under the RAI question).

Facility	Applicable RAI Questions					
	1	2	3	4	5	6
Arkansas Nuclear One, Units 1 and 2					x	
Beaver Valley Power Station, Units 1 and 2			x		x	
Braidwood Station, Units 1 and 2				x	x	x
Browns Ferry Nuclear Plant, Units 1, 2 and 3	x				x	
Brunswick Steam Electric Plant, Units 1 and 2			x	x	x	
Byron Station, Units 1 and 2				x	x	x
Callaway Plant, Unit 1	x			x	x	
Calvert Cliffs Nuclear Power Plant, Units 1 and 2			x	x		x
Catawba Nuclear Station, Units 1 and 2	x		x		x	
Clinton Power Station, Unit 1				x	x	x
Columbia Generating Station			x		x	
Comanche Peak Steam Electric Station, Units 1 and 2		x	x	x		x
Cooper Nuclear Station	x	x	x	x		x
Crystal River Unit 3 Nuclear Generating Plant			x		x	
Davis-Besse Nuclear Power Station, Unit 1			x		x	
Diablo Canyon Power Plant, Units 1 and 2			x		x	
Donald C. Cook Nuclear Plant, Units 1 and 2			x		x	
Dresden Nuclear Station, Units 2 and 3				x	x	x
Duane Arnold Energy Center		x	x	x	x	
Edwin I. Hatch Nuclear Plant, Units 1 and 2			x	x		
Fermi, Unit 2			x		x	
Fort Calhoun Station, Unit 1				x		
Grand Gulf Nuclear Station, Unit 1			x		x	
H. B. Robinson Steam Electric Plant, Unit 2			x		x	

Facility	Applicable RAI Questions					
	1	2	3	4	5	6
Hope Creek Generating Station			x	x	x	x
Indian Point Nuclear Generating, Units 2 and 3			x			
James A. FitzPatrick Nuclear Power Plant			x			
Joseph M. Farley Nuclear Plant, Units 1 and 2	x		x	x		
Kewaunee Power Station			x		x	
LaSalle County Station, Units 1 and 2				x	x	x
Limerick Generating Station, Units 1 and 2				x	x	x
McGuire Nuclear Station, Units 1 and 2	x		x		x	
Millstone Power Station, Units 2 and 3					x	x
Monticello Nuclear Generating Plant			x			
Nine Mile Point Nuclear Station, Units 1 and 2			x			x
North Anna Power Station, Units 1 and 2	x		x	x	x	
Oconee Nuclear Station, Units 1, 2, and 3	x		x		x	
Oyster Creek Generating Station				x	x	x
Palisades Nuclear Plant	x		x		x	
Palo Verde Nuclear Generating Station, Units 1, 2 and 3					x	x
Peach Bottom Atomic Power Station, Units 2 and 3			x	x	x	x
Perry Nuclear Power Plant, Unit 1			x		x	
Pilgrim Nuclear Power Station*						
Point Beach Nuclear Plant, Units 1 and 2	x		x			
Prairie Island Nuclear Generating Plant, Units 1 and 2	x		x			
Quad Cities Nuclear Power Station, Units 1 and 2			x	x	x	x
R. E. Ginna Nuclear Power Plant				x	x	x
River Bend Station, Unit 1	x				x	
Salem Nuclear Generating Station, Units 1 and 2					x	x
San Onofre Nuclear Station, Units 2 and 3			x	x	x	x

* No response required for Pilgrim or Vermont Yankee

Facility	Applicable RAI Questions					
	1	2	3	4	5	6
Seabrook Station, Unit 1				x	x	
Sequoyah Nuclear Plant, Units 1 and 2	x				x	
Shearon Harris Nuclear Power Plant, Unit 1			x	x	x	
South Texas Project, Units 1 and 2			x		x	x
St. Lucie Nuclear Plant, Units 1 and 2					x	
Surry Power Station, Units 1 and 2	x			x	x	
Susquehanna Steam Electric Station, Units 1 and 2			x			x
Three Mile Island Nuclear Station, Unit 1					x	x
Turkey Point Nuclear Plant, Units 3 and 4					x	
Vermont Yankee Nuclear Power Station*						
Virgil C. Summer Nuclear Station	x	x			x	
Vogtle Electric Generating Plant, Units 1 and 2	x			x		
Waterford Steam Electric Station, Unit 3	x		x		x	
Watts Bar Nuclear Plant, Unit 1	x				x	
Wolf Creek Generating Station	x	x	x		x	x

* No response required for Pilgrim or Vermont Yankee