AmerGen
A PECO Energy/British Energy Company

AmerGen Energy Company, LLC
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April 19, 2000
5928-00-20120

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

Dear Sir or Madam:

Subject: THREE MILE ISLAND NUCLEAR GENERATING STATION, UNIT 1 (TMI-1)
OPERATING LICENSE N0. DPR-50/DOCKET NO. 50-289
REQUEST FOR ADDITIONAL INFORMATION [RAI] CLARIFICATIONS
TECHNICAL SPECIFICATION CHANGE REQUEST [TSCR] No. 283
(TAC No. MA6312)

This letter responds to the NRC telephone conference call of March 15, 2000 which raised some questions on the subject RAI responses, AmerGen is providing this additional information as agreed upon by teleconference with the TMI-1 Project Manager, Mr. Timothy Colburn, to support the technical staff review of the TSCR No. 283.

The attachment to this letter contains clarifications to the AmerGen response to the Staff's questions contained in your transmittal of January 24, 2000, which was responded to by AmerGen Letter No. 5928-00-20034, dated February 17, 2000. In our March 15, 2000 teleconference with your Staff, AmerGen committed to effectuate the procedure changes described in the attachment to this letter before the start of the Summer season. The procedure change shall be completed by May 31, 2000. If you have any questions concerning this response letter please contact Mr. Gregory M. Gurican of Regulatory Engineering at TMI Unit 1 (717) 948-8753.

Very truly yours,

John B. Cotton
Vice President, TMI Unit 1

JBC/gmg

Enclosures

cc: Administrator, NRC Region I – Hubert J. Miller
TMI-1 Senior Project Manager – Timothy G. Colburn
TMI-1 Senior Resident Inspector – Wayne L. Schmidt
File No.: 99096

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AMERGEN ENERGY COMPANY, LLC.

(A PECO Energy/British Energy Company)

Three Mile Island Nuclear Station, Unit 1
Operating License No. DPR-50
Docket No. 50-289
Technical Specification Change Request (TSCR) No. 283
Request for Additional Information - Clarifications

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF DAUPHIN)

This response to the NRC teleconference request for clarifications on the AmerGen response to the Staff's Request for Additional Information dated January 24, 2000 is submitted in support of Licensee's request to change the Appendix A Technical Specifications of Operating License No. DPR-50 for the Three Mile Island Nuclear Station, Unit 1.

All statements contained in this submittal have been reviewed, and all such statements made and matters set forth therein are true and correct to the best of my knowledge.

AmerGen Energy Company, LLC

BY: John B Cotton
Vice President, TMI Unit 1

Sworn and subscribed before me this 19th day of April, 2000.

SEAL:

Suzanne C. Miklosik
Notary Public

Notarial Seal
Suzanne C. Miklosik, Notary Public
Londonderry Twp., Dauphin County
My Commission Expires Nov. 22, 2003
Member, Pennsylvania Association of Notaries

ENCLOSURE

Response to Request For Additional Information
Clarifications
Operating License No. DPR-50
Docket No. 50-289

Technical Specification Change Request No. 283

EXTRACTS FROM THE FEBRUARY 17,2000 RAI RESPONSE LETTER

Question

8a. *"What indications are available to the operator to make low voltage operability calls on the offsite system during plant operation?*

Response:

The operators are provided with low voltage alarms on the 230 kV switchyard bus (234.4 kV), and the 480 V ES buses (423 V).

The GPU Energy Transmission System Operator has an Energy Management System (EMS) alarm for the TMI switchyard at 232.4 kV. The PJM System Operator also has a TMI switchyard EMS Normal Low Limit Alarm at 232.4 kV and an EMS Emergency or Post Contingency Low Limit Alarm at 223.3 kV.

Question

8b. *"If an event occurs that results in tripping of the plant, the loss of voltage support to the switchyard in combination with the increased loading of the safety loads will likely result in lower safety bus voltages than is typically seen during power operation. The alarms on the 480 V unit substations will not necessarily alert the operators to such a condition prior to the trip. Do your operators have the ability to determine when switchyard and plant conditions during operation would result in insufficient post-trip event voltages?"*

Response:

The critical contingency voltage minimum expected voltage (currently 224.3 kV) relates to a post trip event. Calculation C-1101-700-E510-010, Revision 2, shows that the grid is available to start LOCA loads without risk of separation at a bounding switchyard voltage of 223.3 kV, with two transformers available.

The actual "operability limit" would depend on information relating to grid conditions that may not be available to the operators, including system transmission and generation outages, system transfers, etc. The PJM, switchyard, and, plant alarms provide indication of a distressed grid but are not intended to be used as grid availability (operability) alarms.

For single transformer operation, the TMI Unit 1 licensing basis recognizes that low grid voltage combined with a LOCA and single transformer operation is a low probability combination of events which could result in grid separation.

Question

9. *"Will a plant trip result in an overcurrent condition on the DG?"*

Response:

No. During single transformer operation, the operating Diesel Generator will be running isolated from the grid, supplying one 4160 V ES bus. This occurs automatically on a Auxiliary Transformer trip in that the Class 1E Bus connected to the failed transformer does not transfer but it is automatically loaded onto the diesel generator.

MARCH 15th TELECONFERENCE CLARIFICATIONS:

1. RE: Questions 8a and 8b – responses above.

In 8a you indicate that the operators are provided with certain low voltage alarms, and that GPUE and PJM also get alarms; however, in 8b you indicate that "grid conditions may not be available to the operator." So, how will the operator recognize when the plant is operating the region of adequate off-site voltage, especially when the TMI-1 generator is supporting the grid and you have indicated that grid separation may occur?

Response:

A protocol has been established with PJM (Pennsylvania, Jersey, Maryland) Interconnection, LLC which established a calculated post contingency (unit trip or loss of other major grid facility) low limit voltage alarm of 223.3 kV. The alarm limit is determined by the security analysis package of the PJM Emergency Management System (EMS). The GPUE Transmission Systems Operations Dispatcher will notify the TMI-1 control room operators if this alarm condition occurs.

The TMI-1 Low System (Grid) Voltage Procedure (1203-41) will be revised by May 31, 2000 to include an "IF/THEN" statement for the Post Contingency (TMI-1 trip only) low limit alarm such as the following:

IF the GPUE Transmission System Operations (TSO) Dispatcher reports that a "Post Contingency Alarm for Loss of TMI-1" has occurred and the contingency voltage is less than or equal to 223.3 kV, on the TMI-1 230 kV bus,

THEN, all off site circuits are not capable of supplying LOCA loads if the main generator trips therefore perform the following:

1. Verify that the dispatchers (GPUE and PJM) are taking action to improve grid reliability; and,
2. Stop any in-plant work that could affect the ES buses or Emergency D/Gs; and,
3. Within 1 hour verify that both Emergency D/Gs are operable. IF either Emergency D/G is inoperable, THEN restore the inoperable Emergency D/G within 8 hours or begin unit power reduction and be in HOT SHUTDOWN in 6 additional hours; and,
4. IF the contingency alarm for the TMI-1 trip has not cleared in 24 hours, THEN the unit shall begin a power reduction and be in HOT SHUTDOWN in 6 additional hours.
5. Additional actions to protect power sources:
   A. If the SBO diesel generator is out of service, return it to service ASAP; and,
   B. Stop testing or evolutions that could affect plant stability.

2. RE: Question 9 –response above.

(A.) During single transformer operation, will the operating EDG while running isolated have sufficient bus loading at the 4160kv level to prevent or avoid exhaust system fouling if run for long periods, e.g. 30 days as allowed by Tech. Specs.? (B) Has the loading sequence logic for ES actuation been confirmed to be adequate?

Response A.

The TMI Unit 1 Emergency Diesel Generators (EDGs) can be relied upon to run lightly loaded for the 30 day Technical Specification time clock allowance and if the EDG is called upon to respond to LOCA loading from this reduced or unloaded condition.

Response B.

The diesel generator will respond in a manner similar to its performance for LOOP followed by LOCA, which is part of the design basis for the electrical system. The only difference is the potential to have some 480 volt MCC loads manually loaded that would have been tripped by a LOOP. Calculation C-1101-741-E510-005, "Loading Summary of Emergency Diesel Generators and Engineered Safeguard Buses", tracks the loading under these conditions to ensure that the load does not exceed the 2,000 hour limit of 3 MW for the class 1E diesel generators.

3. RE: The calculation provided in 5928-00-20034, dated February 17, 2000

The calculation (C-1101-700-E510-010 page 67 of 77) discusses tap changes at the 232KV level and that grid separation can occur. Do the operators have procedures which call for reductions in the 4160 bus loading (<41 kW) to prevent separation from the grid, and how is this controlled?

Response:

Operating procedure OP-1102-2, "Plant Startup," Enclosure 1, "Plant Precritical Check List," requires that the tap be set for power operation before the reactor start-up/criticality. This ensures that the secondary load will not include the secondary pumping power and ensures that the electrical system is ready to support criticality and power operations.

Operating procedure OP-1102-11, "Plant Cooldown," begins the process of changing taps to the shutdown position about the time the plant is going on Decay Heat Removal (240 F). At this point in time electrical load has significantly reduced such that over-voltage conditions are of greater concern than undervoltage conditions.