

PMTurkeyCOLPEm Resource

From: Comar, Manny
Sent: Thursday, September 15, 2011 2:24 PM
To: orthen, Richard; Raymond Burski; Steve Franzone; STEVEN.HAMRICK; TurkeyCOL Resource; William Maher
Subject: Draft RAI 5993 related to SRP Section 08.02 - Offsite Power Systems for the Turkey Point Units 6 and 7 combined license application.
Attachments: draft RAI 5993_TPN.doc

To All,

Attached is the draft of RAI No:5993, regarding section 08. 02 Offsite Power System for the Turkey Point Units 6 and 7 combined license application.

If you need a conference call to discuss the question(s) of the draft RAIs please contact me at 301-415-3863. Unless you request additional clarification we will normally issue the RAI as final within 3 to 5 days, from today.

Thanks

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Request for Additional Information No. 5993

Turkey Point Units 6 and 7
Florida P and L
Docket No. 52-040 and 52-041
SRP Section: 08.02 - Offsite Power System
Application Section: 8.2

QUESTIONS for Electrical Engineering Branch (EEB)

08.02-***

FSAR, Revision 2, Section 8.2.1 states that the transmission lines are designed with a basic insulation level (BIL) that will minimize flashovers caused by lightning. Please provide BIL value with basis.

08.02-***

FSAR, Revision 2, Subsection 8.2.1.1 states that 500-kV and 230-kV breakers are rated for 50 and 63 kilo-amperes respectively. No ratings are provided for the switchyard disconnect switches and no basis is provided for the specified fault ratings. Therefore, the applicant is requested to indicate why the ratings of circuit breakers and disconnect switches are adequate for the application. In particular, provide in the FSAR the calculated available fault current during the worst case scenario and justify the assumptions used in your analysis. Also, confirm that the breaker interrupting ratings, both symmetrical and asymmetrical, are consistent with the available fault.

08.02-***

FSAR, Revision 2, Subsection 8.2.1.1 states that the switchyard includes surge protective devices, and grounding and a lightning protection system in accordance with standard industry practice. FSAR Table 8.1-201 states that RG 1.204 is applicable to offsite and onsite power systems. Please clarify if surge protective devices, grounding and lightning system will follow the guidelines of RG 1.204 and revise FSAR Subsection 8.2.1.1 accordingly.

08.02-***

FSAR, Revision 2, Subsection 8.2.1.4 states that the transmission switchyard interface agreement will specify that grid maintenance and testing activities that could affect offsite power reliability be closely coordinated with Units 6 and 7. Please indicate the extent to which maintenance and modifications to the switchyard and substation will be reviewed, controlled, and approved through the PTN process.

08.02-***

FSAR, Revision 2, Subsection 8.2.1.4 does not provide details regarding testing and inspection of switchyard component. Please provide details in the FSAR regarding testing and inspection of switchyard component and the frequency at which they will be tested/inspected. Also, discuss whether North American Electric Reliability Corporation standards will be used for switchyard maintenance and testing.

08.02-***

The Turkey Point switchyard (Clear Sky substation) is shared among Units 6 and 7. Accordingly, GDC 5 appears applicable. GDC 5 requires that component parts of the offsite power system not be shared among units without sufficient justification, thereby ensuring that an accident in one unit of a multi-unit facility can be mitigated using an available complement of mitigative features, including required ac power, irrespective of conditions in the other units and without giving rise to conditions unduly adverse to safety in another unit. RG 1.32 provides acceptable guidance related to the sharing of structures, systems, and components of the preferred offsite power system. Discuss in the FSAR how GDC 5 is met specifically the capacity of transmission lines to adequately support auxiliary loads of one unit during an accident where the other unit is in a safe shutdown condition.

08.02-***

FSAR, Revision 2, Section 8.2.2 states that the grid stability study examined the following contingencies: (1) loss of the largest source, (2) loss of most critical transmission circuit, (3) loss of the largest load, (4) grid stability following turbine trip, and (5) breaker failure. Additionally, FSAR states that the results of the grid stability analysis study do not indicate a loss of electric power from any remaining supplies as a result of, or coincident with, the loss of power generated by the nuclear power units or the loss of power from the transmission network. (1) Provide in the FSAR the assumptions made, results (maximum and minimum voltage, frequency variations, and frequency decay rate, etc.) and acceptance criteria for each case. (2) Also, discuss how often the grid study is performed.

08.02-***

FSAR, Revision 2, Section 8.2.2 states that the results of turbine trip simulations demonstrate that the voltage and frequency of 230 kV switchyard buses remain within the limits required to maintain reactor coolant pump operation for at least 3 seconds following a turbine trip in either Unit 6 or 7. Provide in the FSAR, a summary of the simulation results (pre-trip steady-state voltage, voltage at the pump terminals with acceptance criteria.)

08.02-***

The staff observed that the scope of the interface agreement does not include communication to the grid operator of risk-sensitive plant maintenance activities that could affect grid conditions. Therefore, the staff requested that the applicant indicate whether: (a) they coordinate Nuclear Power Plant maintenance activities that can have

an impact on the transmission system with the TSO; and (b) they 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. Additionally, the staff asked that the applicant indicate whether risk sensitive maintenance activities are shared between the Units and confirm that a quantitative or qualitative grid reliability evaluation will be performed at PTN Units 6 & 7 as part of the maintenance risk assessment required by 10CFR 50.65(a)(4) before performing grid-risk-sensitive maintenance.

08.02-***

FSAR, Revision 2, Section 8.2.2 states that the transmission study confirmed that the interface requirements for steady state load, inrush kVA for motors, nominal voltage, allowable voltage regulation, nominal frequency, allowable frequency fluctuation, maximum frequency decay rate, and the limiting under frequency value for the RCP have been met. Please provide in the FSAR a summary of the grid stability interface evaluation results, the assumptions made, and the acceptance criteria for each case analyzed.

08.02-***

Table 1.8-1 of the AP1000 design certification provides an interface item that states "the protective devices controlling the switchyard breakers are set with consideration given to preserving the plant grid connection following a turbine trip." This is to ensure that RCP bus voltage stays above the voltage required to maintain the flow assumed in the DCD Tier 2, Chapter 15 analyses for a minimum of 3 seconds following a turbine trip. Provide a reference to where this interface item is discussed in the FSAR.