

NRR-PMDAPEm Resource

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Sent: Thursday, May 28, 2015 4:39 PM
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Subject: Draft REQUEST FOR ADDITIONAL INFORMATION MF6153.docx
Attachments: Draft REQUEST FOR ADDITIONAL INFORMATION MF6153.docx

These are draft RAs for the emergency diesel generator LAR on Unit 1. Let me know if you have any question or if you want a clarification call. As a reminder, I am out of the office May 29 to June 5- contact Robert Kuntz.

Thanks,

Jeanne Dion
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REQUEST FOR ADDITIONAL INFORMATION REGARDING
DIESEL GENERATOR STEADY STATE FREQUENCY
WATTS BAR NUCLEAR PLANT, UNIT 1
DOCKET NO. 50-390
(TAC NO. MF6153)

The following questions were developed as a result of the staff's review of the license amendment request (LAR) to modify the acceptance criteria for the diesel generator (DG) steady state frequency range provided in Technical Specification (TS) Surveillance Requirements (SRs) 3.8.1.7, 3.8.1.9, 3.8.1.11, 3.8.1.11, 3.8.1.12, 3.8.1.15, 3.8.1.19, and 3.8.1.21 for the Watts Bar Nuclear Plant, Unit 1

BACKGROUND

The WBN Unit 1 LAR is based on an approach similar to WBN Unit 2 submittal for response to NUREG-0847, Supplemental Safety Evaluation Report (SSER) 22, Open Item No. 32 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14038A079). To support the WBN dual-unit operation with shared equipment, the DG voltage and frequency should be aligned for both units. The staff reviewed the LAR for Unit 1 and compared the information submitted for Unit 2 open item 32 and developed the following request for additional information:

QUESTIONS

1. On page E-12 of Enclosure 1 it states "Only major pumps in safety significant systems were evaluated in detail, because, as summarized in Table 3, the speed, load, flow, and NPSH are minimally impacted (i.e., 0.3%)." However, staff notes that Table 3 summarizes flow rates only. Correct the statement to accurately reflect the record.
2. On page E-14 of Enclosure 1 it states "For 480 V motors, the speed reduction will be 0.3% to 0.63% due to greater voltage drop and higher rated motor slips." Please confirm a bounding analysis was performed to validate the speed changes for 480 V motors. Please provide the reference to support the statement that the speed reduction will be 0.3% to 0.63%.
3. On page E-14 of Enclosure 1, Section 3.2.4 it states "The increased speed during operation will result in increased flows which in turn increases suction side losses and reduces margin between available and required NPSH. The decreased speed will result in decreased flows which in turn decreases suction side losses and increases the margin between available and required NPSH."

The staff notes that the NPSH parameters in Table 4, on page E-15 are not consistent with the statement in Section 3.2.4 statement. Please provide an explanation of the specific variations in the NPSH parameters due to frequency variation ($\pm 0.3\%$).

4. On page E-16 of Enclosure 1, Table 5 provides a summary of 'effective' brake horsepower (BHP) at the allowable frequency range. The staff notes that at

Enclosure

nominal frequency, the effective BHP is higher than the nominal HP for all motors except for the Containment Spray (CS) pump. The staff also notes a difference in BHP for the Centrifugal Charging (CC) pumps between the two units (Reference Table 5 in Enclosure 1 for Unit 2 SSER submittal). Please explain the reason for the differences.

5. On Page E-14 of Enclosure 1 it states "To support Westinghouse's DG frequency range evaluation, Flowserve, the ECCS [Emergency Core Cooling System] pump vendor provided input as to the expected performance of the Centrifugal Charging pumps and Intermediate Head Safety Injection pumps for continuous operation up to 30 days. Flowserve concluded that both pumps are expected to undergo minor cavitation damage, but would remain operational for the 30 days, with gradual decline in pump/power performance. Additional detail regarding the impact of minor cavitation damage on pump performance is provided in Flowserve Report GS-8236, Revision 3, "Run-Out Flow Operation Capability Analysis" (Reference 18)."

Please submit the above referenced Flowserve Report.

6. Please provide basis/reference for the following statements:
 - a. On page E-16 of Enclosure 1 it states "The BHP with a speed variation of ± 0.3 will vary by 1.0%."
 - b. On page E-12 of Enclosure 1 it states "The stroke time will be less than 0.8% longer."