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Perry Nuclear Power Plant
Docket No. 50-440
Supplemental Letter to the License Amendment Request
Regarding Extending The Emergency Diesel Generator
Completion Time to 14 Days (TAC Number MA3537)

Ladies and Gentlemen:

This letter supplements the September 3, 1998, license amendment request (PY-CEI/NRR-2319L) submitted by the Perry Nuclear Power Plant (PNPP) staff, which requests an extension of the Emergency Diesel Generator (EDG) Technical Specification (TS) Action Completion Time to 14 days for a Division 1 or 2 EDG. Also requested was an allowance to perform the EDG 24-hour TS Surveillance Requirement test in Modes 1 and 2. Letters dated December 3, 1998 (PY-CEI/NRR-2342L), and December 9, 1998 (PY-CEI/NRR-2348L), also supplemented this license amendment request. Approval of this license amendment request is expected to reduce the complexity of activities performed during refueling outages, therefore reducing human performance errors and the duration of refueling outages, while not adversely impacting the margin of safety.

On Thursday December 17, 1998, the PNPP staff participated in a telephone conference call with NRC reviewers to address questions regarding the referenced license amendment request. Attachment 1 addresses the questions discussed in the telephone conference call, and contains further information to clarify the September 3, 1998 submittal.

If you have questions or require additional information, please contact Mr. Henry L. Hegrat, Manager - Regulatory Affairs, at (440) 280-5606.

Very truly yours,

Lew W Myers

Attachment

cc: NRC Project Manager
NRC Resident Inspector
NRC Region III
State of Ohio

The following questions were discussed in a December 17, 1998, telephone conference call regarding the Emergency Diesel Generator (EDG) Completion Time extension amendment request [Allowed Outage Time (AOT) extension request] submitted on December 3, 1998 (PY-CEI/NRR-2319L), and supplemented by letters dated December 3, 1998 (PY-CEI/NRR-2342L), and December 9, 1998 (PY-CEI/NRR-2348L). Within this telephone conference call, it was agreed that the following information would be submitted.

NRC QUESTION

1. Regarding the September 3, 1998, letter, Attachment 1, Page 15 of 16, under "Commitments Within This Letter," clarify the intent of Commitment 1.

RESPONSE

The intent of the referenced commitment (1) is to require that only one EDG be in test while parallel with the offsite grid. This ensures that defense in depth is maintained by ensuring the alternate AC power sources, such as the other Division EDGs, are available, operable and in standby.

NRC QUESTION

2. Is decreased severe accident risk achieved with implementation of 10 CFR 50.63 (SBO) eroded due to the 14 day EDG AOT extension? Are EDG reliability/availability (if used) targets in Perry's SBO analyses/submittals met in light of the EDG AOT extension? Also discuss the last sentence in the second paragraph on Page 13 of Attachment 1 to September 3, 1998, AOT extension request letter.

RESPONSE

The Perry EDG AOT extension request has no impact on severe accident risk associated with 10 CFR 50.63, "Loss Of All Alternating Current Power," which is described in Chapter 15H of the Perry Updated Safety Analysis Report (USAR), since adequate core cooling is maintained with the Division 3 EDG that powers the High Pressure Core Spray Pump. The Division 1 and 2 EDGs are assumed to be lost as part of the deterministic application associated with the AOT extension request for the SBO scenario.

Perry has committed to maintaining the EDG target reliability of 0.95. This commitment is contained in the Perry USAR, Chapter 15H.2.1.4. Perry has no commitment for EDG target availability. The Perry Maintenance Rule Program has established the reliability performance criteria of no more than 4 diesel generator functional failures per 2 fuel cycles (using the EPRI methodology). Exceeding this reliability performance criteria with 5 functional failures will result in all EDGs being categorized with unacceptable performance with a reliability of 0.965, which is more conservative than the licensing basis of 0.95.

The last sentence in the second paragraph on Page 13 of Attachment 1 to the September 3, 1998, AOT extension request letter pertains to the Maintenance Rule performance criteria for the Division 1 and Division 2 EDGs. The applicable performance criteria values will be adjusted to account for the proposed AOT increase. The unavailability performance criteria will be increased from 0.020 to 0.027 and the allowed functional failures will be increased from 3 to 4.

NRC QUESTION

3. How does Perry's actual LOOP frequency compare with the industry's average?

RESPONSE

The Perry Loss of Offsite Power (LOOP) initiating event frequency was calculated utilizing input from NUREG-1032, "Evaluation of Station Blackout Accidents at Nuclear Power Plants." The current value used is 6.09×10^{-2}. To date, Perry has not experienced any LOOP events.

NRC QUESTION

4. Discuss present testing requirements of the EDG Fire Pump.

RESPONSE

The Diesel Fire Pump testing Requirements are as follows:

The Diesel driven Fire Pump is verified operable on a monthly and weekly basis. Weekly, the diesel driven pump is started and operated during performance of the plant operating rounds. Weekly performance is in accordance with a Plant Rounds Instruction. Monthly the Diesel Fire Pump is started and operated in accordance with a Plant Test Instruction. This testing is in accordance with the Perry USAR, Figure 9.5-1, and Appendix 9A, and is delineated in a Plant Administration Instruction.

The Diesel Fire Pump is started by creating a system demand to verify that the pump will start at its respective setpoint, which in turn verifies that the pump will start sequentially with the electric driven pump. Lube oil samples and quarterly preventive maintenance inspections are performed at least once per 92 Days. Vibration monitoring is performed at least once per 6 months.

In addition, a full functional test is performed every 18 months in accordance with a Plant Administrative Procedure. This test includes the flow of water through various paths to ensure that all calculated hydraulic demands including the largest single demand can be achieved. A pump curve is derived from the information gathered during performance of the test and compared with the original performance curve to determine any degradation of the pump capability.

NRC QUESTION

5. From the discussion on Page 5 of Attachment 1, it is not clear how LOOP is detected when an EDG is running parallel to the grid. Discuss how a LOOP is detected for the bus to which the EDG is connected.

RESPONSE

While the EDG is operating in the test mode (in parallel with the grid) it is incapable of maintaining safety bus voltage above that which is dictated by grid conditions. Therefore, a degraded grid voltage condition will be detected in the normal manner and the resulting LOOP logic response will isolate the EDG from the grid by tripping the offsite supply isolation breaker. The EDG will remain connected to the safety bus and capable of supporting the LOOP response.

If a grid condition occurs during parallel operation of the EDG resulting in a slow degradation of grid voltage with grid voltage maintained above the degraded voltage relay setpoint, EDG voltage regulator adjustments will be made to maintain KVAR loading requirements. Since the grid is still capable of supplying the majority of the non-safety kW load, any increase in EDG kW loading is minimal for this scenario. EDG operability will be evaluated based on specified loading limits with possible manual termination of the test (24 hour EDG surveillance test per Technical Specification Surveillance Requirement 3.8.1.14) and return of the EDG to a standby condition.

If a rapid degradation in grid capability occurs due to component failure, the EDG will be immediately overloaded. The overload condition will result in an EDG speed reduction, which will be detected by EH bus underfrequency relaying. The underfrequency relays will trip the offsite supply isolation breaker. The EDG will be isolated from non-safety loads prior to tripping from overload and will remain connected to the EH bus and capable of supporting the LOOP response. Under this scenario, overspeed tripping of the EDG under test is possible following the resulting load rejection. If overspeed tripping occurs, the EDG under test will have to be manually reset but redundant divisions will respond correctly to the LOOP event.

In addition, performance of the EDG 24 hour test with the Perry Plant on line may result in excessive EDG KVAR load fluctuations due to the Perry Plant response to normal grid load excursions, which occur over the 24 hour load cycle. Normal grid load changes are gradual increases or declines with some loading conditions maintained for periods of hours. These grid load changes are compensated for by adjustments in main generator, VAR output, and grid voltage. Any changes made to main generator, VAR output, or grid voltage during EDG parallel operation, may have a significant impact on EDG KVAR loading. EDG KVAR load requirements are specified in surveillance test procedures and are closely monitored during the test per these procedures.

Adjustments are made throughout the duration of the test to maintain EDG KVAR load at the specified level. If a sustained KVAR loading condition beyond the adjustment capability of the EDG is encountered consideration will be given to termination of the EDG 24 hour test and return of the EDG to the standby condition. The test will be terminated prior to reaching a sustained loading condition in excess of the EDG KVA rating (8750 KVA Div 1 and 2, 3250 KVA Div 3).