From:	Guzman, Richard
To:	"Vandeputte, Dennis E"
Cc:	"Dosa, John J"
Subject:	NMP2 Inoperable DG Extension of CT - LAR - Supplemental EE RAI Questions
Date:	Tuesday, February 22, 2011 2:57:00 PM

Dennis,

Provided below are the NRC staff's supplemental electrical engineering branch (EEEB) draft questions following their review of the NMPNS RAI response dated December 29, 2010 (ADAMS Accession No. ML110110165). We can support a teleconference call to discuss any clarifications you may have prior to addressing the questions in your formal supplemental response; please propose some dates/times for the call and I'll check availabilities on my end.

Thanks,

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1. NMP2-EEEB-Supplemental RAI-3.a

- 1) The source of cooling water for the Division 3 HPCS DG is stated to be Lake Ontario. Provide details on any chemical treatment or filtration systems required to treat the water for cooling a safety related system. Diesel Generator lube oil and cooling water systems are normally maintained at high temperatures for optimum performance of the engine. Provide details on the effects of lake water temperature on the performance capability of the HPCS diesel.

- 2) Division 1 and Division 2 DGs have adequate fuel oil stored for seven day operation without replenishment. During the extended completion time (CT) for Division 1 or Division 2 DGs, the HPCS DG and its support systems and the portable generator for the DC systems are proposed to perform the safety functions of the DG that is inoperable. Provide details on the fuel oil requirements and capability of support systems for operation of the HPCS DG and DC systems for extended duration.

- 3) Fuel oil for the diesel driven fire pump is expected to be replenished from an underground fuel storage tank containing 1000 gallons using an electric pump or a hand pump. Provide details on the power source and capacity of the electric pump and the capacity of the hand pump. Demonstrate that the capability of each pump is adequate for the extended duration.

- 4) The license amendment request (LAR) dated March 30, 2010, proposes using

diesel driven fire pump to support operation of HPCS DG when required to replace Division 1 or Division 2 DGs during extended maintenance activities. Provide details on consequences of a fire related event resulting in a LOOP during the extended DG maintenance activities.

2. NMP2-EEEB-Supplemental RAI-3.b

NMP2 has a procedure to connect a 60 kVA portable generator to a Div 1 or Div 2 battery charger to cope with SBO condition beyond 4 hours, and the estimated time to perform the procedure outlined in the RAI response is 2.5 hours. Provide details on availability of resources required for manual actions necessary for alignment of the HPCS system and its support systems, and portable generator for the DC system within the time constraints identified in the LAR. Verify that the complete procedure for this connection can be done in parallel with the manual breaker line-up procedure to cross-connect the Div 3 DG to Div 1 or Div 2, which is estimated to take approx. 2 hours. Describe the sequence of these activities with respect to man-power resources to accomplish the procedure.

3. NMP2-EEEB-Supplemental RAI-3.c

The purpose of the supplemental power source is to provide defense in depth, avoid entry into station blackout conditions for extended duration and maintain the plant within design bases. The station blackout analyses may be used to demonstrate that the plant can be maintained in a safe condition while the supplemental AC source is being aligned. The NRC staff's expectation is that this supplemental power source has adequate capacity to bring the plant to a cold shutdown, if required, during the time that Division 1 or Division 2 DG is in an extended outage. Provide details about the capability of the proposed supplemental power source to bring the plant to a cold shutdown.

4. NMP2-EEEB-Supplemental RAI-3.d

The LAR states that the calculated steady state load for the HPCS DG is 2748 kW when required to replace the Division 1 or Division 2 DG. The HPCS DG is expected to operate at steady state load for an *extended duration*. According to the NMPNS RAI response in letter dated December 29, 2010, the capability of HPCS DG to support this loading was verified during the last three surveillance runs for the *two hour* load range required by TS SR 3.8.1.12a. The capability of the EDG operation for an extended duration is demonstrated under TS SR 3.8.1.12b. The current surveillance requirement (SR) requires the DG to be tested in the range 2340kW to 2600kW. Provide details on methods used to verify the capability of the HPCS DG for extended operation at 2748kW. The staff considers current TS SR 3.8.1.2 as non conservative based on potential loading of the HPCS DG for steady state and short term overload conditions if the HPCS DG is planned to be used for plant shutdown during maintenance of Division 1 or Division 2 DGs.

5. NMP2-EEEB-Supplemental RAI-4

The licensee stated that it is not necessary to establish TS requirements to implement the compensatory measures associated with the DG CT extension amendment. Several studies have been performed (e.g. NUREG-1784 and

NUREG/CR-6890) which concluded that the average duration of LOOP events has increased from the duration assumed at the time of issuance of the SBO Rule. As such, from a deterministic perspective, the NRC staff considers that the compensatory measures associated with ensuring that the supplemental source is available before entering and during the extended 14-day CT is of high regulatory significance and should therefore be enforced via TS actions. This is consistent with recent approvals of extended CTs for onsite power sources. The NRC staff considers TS amendments related to availability of the supplemental source as an adequate assurance that plant safety will be maintained during the extended CT. The proposed amendments should:

a. Identify the actions that will be taken if the supplemental source becomes unavailable during the extended DG (Division 1 or 2) outage, and
b. Ensure that the availability of the supplemental source will be verified at least once every 12 hours.

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