

REQUEST FOR ADDITIONAL INFORMATION

NORTHERN STATES POWER COMPANY - MINNESOTA

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2

DOCKET NOS. 50-282 AND 50-306

By letter dated January 27, 2010, the Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (the licensee) requested a license amendment to revise the Unit 1 diesel fuel oil storage volumes in Technical Specification (TS) 3.8.3, and to add a wording clarification in a TS 3.8.3 Condition statement for the Prairie Island Nuclear Generating Plant, Units 1 and 2. To complete its review, the NRC staff requests the following additional information.

1. Administrative limits of ± 0.5 Hz have been placed on the allowable frequency range within which the emergency diesel generators (EDGs) can operate. The license amendment request (LAR) states that the fuel consumption calculations were performed at the upper administrative limit of +0.5 Hz (60.5 Hz). The Technical Specification (TS) allowable value is 61.2 Hz. Provide details on plans to change TS allowable frequency range given that the existing allowable frequency range results in higher fuel consumption.
2. Calculation ENG-ME-020 seems to calculate the fuel oil consumption using the alternate method described in Appendix B of ANSI/ANS-59.51-1989. Appendix B states that "a minimum margin of 10 percent is added to the calculated storage requirement if this alternative calculational approach is used." The minimum 10 percent margin does not appear to be added in your calculation. Provide a detailed explanation.
3. Calculation ENG-ME-020 assumes a fuel oil density of 6.91lb/gal. Provide details on the range of fuel oil densities allowed in your fuel oil shipments and clarify the conversion method used in the calculation to evaluate the available BTUs.
4. ASTM D975-08a allows fuel oil to contain up to 5 percent biodiesel. Please explain how your required fuel oil storage capacity will be affected if your fuel oil contains 5 percent biodiesel.
5. The LAR states that six Class 1 tanks are interconnected such that any tank can be manually aligned to supply any Unit 1 EDG or diesel driven cooling water pump day tank and any combination of inventory in these tanks may be used to satisfy the inventory requirements for the Unit 1 EDGs. Provide detailed descriptions of:
 - 1) Flow paths from each tank to each EDG and to associated cooling pumps.

Enclosure

- 2) Procedures/surveillances performed to demonstrate each path will be available when needed.

6. Assumption 4.2.3 of Calculation ENG-ME-020 indicates that the Diesel Engine efficiency is assumed to be 0.974, corresponding to 75 percent loading assumption. Verify that this is a factor relative to the Diesel Fuel oil consumption at 100 percent and not the efficiency of the Diesel Engine. The use of the 75 percent loading efficiency is considered more conservative than the 100 percent loading efficiency. Table 5-1 of the calculation provides the loading profile used for 14-day fuel oil consumption. This Table indicates that the EDG will be loaded at 1524.27kW for 14 days less 1 hour. This loading equates to approximately 55 percent of EDG continuous rating. The relative efficiency is expected to be less than the 75 percent efficiency. Provide a detailed discussion concerning how EDG efficiency is factored into the bounding EDG loading to determine the required bounding storage capacity.

7. The LAR states that the fuel oil tanks and interconnecting piping are buried below the frost line and fuel oil temperature variations are not considered in the calculations. Provide a detailed discussion concerning how temperature is considered in terms of calculating a bounding required fuel volume, given that temperature variations are not considered.

8. The TS fuel oil requirement is based on operation of an EDG and its associated support systems to supply accident mitigation equipment for a specified period of time. At PINGP, the diesel driven cooling water pumps appear to be a support system critical for the operation of the EDG to supply accident mitigation loads for 14 days. Provide a detailed discussion explaining why EDG cooling pump fuel consumption is not factored into the TS-controlled bounding fuel oil volume requirements.

9. Table 5-1 of the calculation ENG-ME-020 provides the loading profile used for 14-day fuel oil consumption. This Table indicates that the EDG loading will be reduced from 2446.72 kW to 1524.27 kW within 1 hour. Provide a detailed discussion, including excerpts from accident analyses, procedures and manual actions, addressing how the load on the EDG is reduced and controlled within 60 minutes after onset of an accident. This discussion should also address manual actions that control the addition of desirable nonsafety-related loads such as air compressors.

10. Table 6-1 of the calculation ENG-ME-020 provides details on fuel oil consumption rates of PINGP Unit 1 EDGs D1 and D2. The two EDGs are similar but data indicates that the efficiencies of the engines are different. The calculation for fuel oil is based on Train B (EDG D2) operation, which bounds the electrical loads for Train A. Provide details verifying that the fuel oil consumption of EDG D1, potentially operating at a marginally lower loading, is less than the EDG D2.