



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 25, 2009

Mr. Stewart B. Minahan
Vice President-Nuclear and CNO
Nebraska Public Power District
72676 648A Avenue
Brownville, NE 68321

SUBJECT: COOPER NUCLEAR STATION - REQUEST FOR ADDITIONAL INFORMATION
RE: BATTERY RESISTANCE SURVEILLANCE REQUIREMENTS (TAC NO.
ME0848)

Dear Mr. Minahan:

By application dated March 11, 2009, to the U.S. Nuclear Regulatory Commission (NRC) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML090750599), as supplemented by letter dated August 12, 2009 (ADAMS Accession No. ML092300636), Nebraska Public Power District (NPPD, the licensee) requested NRC staff approval of an amendment to the Cooper Nuclear Station facility operating license and technical specifications (TSs) to revise the battery acceptance criteria in TS Surveillance Requirements 3.8.4.2 and 3.8.4.5.

The NRC staff reviewed the information provided in your application and determined that additional information is required in order to complete its review. The enclosed questions were provided to Mr. D. Van Der Kamp on November 9, 2009, and discussed with Mr. E. McCutchen, et al., of your staff on November 19, 2009. Please provide a response to the questions by December 21, 2009.

If circumstances result in the need to revise the requested response date, please contact me at (301) 415-2296.

Sincerely,

A handwritten signature in black ink, appearing to read "C. Lyon".

Carl F. Lyon, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-298

Enclosure:
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

BATTERY RESISTANCE SURVEILLANCE REQUIREMENTS

COOPER NUCLEAR STATION

DOCKET NO. 50-298

1. The following clarifying questions pertain to Calculation NEDC 87-131C, "125 VDC Division I Load and Voltage Study," specifically page 15 of the calculation. These questions also apply to the other three calculations provided in the Nebraska Public Power District's letter dated August 12, 2009.
 - a. Explain the origins and provide the technical justification for the formula listed on page 15. Please explain the term Aging Coefficient.
 - b. Provide the design bases temperature for each battery at Cooper Nuclear Station (CNS) and the temperature used in the cell sizing worksheet.
 - c. The calculation lists a design margin factor of 0.95 and asserts that this gives a margin of 5 percent. The Nuclear Regulatory Commission (NRC) staff understands 1.05 as being a typical value representing a 5 percent margin. The staff's position is based on industry guidance documents (e.g., Institute of Electrical and Electronics Engineers (IEEE) Standard 485, "IEEE Recommended Practice for Sizing Lead-Acid Batteries for Stationary Applications"). Provide the technical justification behind your rationale of having a 5 percent design margin.
 - d. In relation to the previous question, please explain how the 5 percent design margin that is being credited as part of the aging coefficient will be maintained in order to meet the minimum criteria specified in the Technical Specification (TS) and the calculation.
2. In the Revision Summary Section of the calculations, the NRC staff notes that the Aging Coefficient is raised from 0.80 (80 percent) to 0.90 (90 percent) consistent with TS Surveillance Requirement (SR) 3.8.4.8. Describe the impact of this change on the expected life of CNS batteries (e.g., conclusions drawn from the battery life versus performance curve for the batteries).
3. Provide the technical basis for the resistance values in the calculations (i.e., resistance values for inter-cell, inter-tie, inter-rack, terminal, and the total battery). The NRC staff understands that a 15-25 micro-ohm limit was included in the discharge curves, but this assumes that a clean, tight connection is established. The purpose of the SR is to verify adequate connections; therefore, it appears that this value should be included in the calculation and not subtracted. Please explain how subtracting 15 micro-ohms from the resistance values listed in the calculations is a conservative assumption and consistent with manufacturer's recommendations.

Enclosure

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/RA/

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*concurring via email

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