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SUBJECT: Responds to NRC 911118 ltr raising questions on util 910215 request that boric acid storage tank vol requirement for Modes 1 through 4 be changed to 5,650 gallons to reflect boron concentration for final Cycle 8 analysis.

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Donald C. Cook Nuclear Plant Unit 2
Docket No. 50-316
License No. DPR-74
ADDITIONAL INFORMATION IN SUPPORT OF THE
TECHNICAL SPECIFICATION CHANGE REQUEST TO REDUCE
THE BORIC ACID STORAGE TANK VOLUME REQUIREMENT

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Attn: T. E. Murley

December 13, 1991

Dear Dr. Murley:

References: 1) AEP Letter No. AEP:NRC:1139, dated February 15, 1991.
2) Letter from H. Abelson (NRC) to W. Long (NRC) dated November 18, 1991.

The purpose of this letter is to respond to several questions that your staff had on our previous submittal (Reference 1). That submittal requested that the Donald C. Cook Nuclear Plant Unit 2 boric acid storage tank (BAST) volume requirement for Modes 1 through 4 be changed to 5650 gallons to reflect the boron concentration requirements specific to the final Cycle 8 analysis, which included additional conservatisms for future cycles. Your staff's questions were presented to us in Reference 2. Our responses to those questions are presented below.

Question 1

Specifically, what operational and maintenance problems have resulted from increasing the BAST volume and how will the proposed reduction alleviate these problems?

Response to Question 1

The Donald C. Cook Nuclear Plant has not experienced any operational or maintenance problems as a direct result of increasing the BAST volume requirement in the Technical Specifications. However, as discussed below, the technical specification change has increased the potential for such operational or maintenance problems.



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By raising the BAST volume requirement, there is less flexibility in restoring the BAST concentration level should it become low. The BAST concentration level restoration process is accomplished by adding boric acid of higher concentration from one of two sources (i.e., from either the non-dedicated (shared) boric acid storage tank, or from the boric acid evaporator). Since the difference in boric acid concentration between these sources and the BAST is small, the required makeup volume can be significant. It is possible that we would have to discharge some boric acid from the Unit 2 BAST in order to accommodate the required additional volume. Similarly, we are required to periodically calibrate the BAST level sensors, and to perform this calibration the BAST must be emptied. Thus, the increase in the BAST volume requirement could create the potential for additional radiological waste.

Human factors considerations dictate that we should try to minimize the number of differences between the Technical Specifications for the two Donald C. Cook Plant units. Making the Unit 1 and Unit 2 Technical Specifications BAST volume requirements the same will reduce the burden on the operators.

Question 2

Specifically, what were the overconservatisms in the earlier (Unit 2, Cycle 8) analysis with regard to final boration concentration? To what extent are they being relaxed?

Response to Question 2

For Unit 2 Cycle 8 we began a transition from an Advanced Nuclear Fuels fuel design to a Westinghouse fuel design. As part of this change, Westinghouse recalculated the BAST volume requirements. At that time, detailed calculations of the shutdown boron requirements had yet to be performed. Westinghouse conservatively estimated bounding final boron concentration requirements using Unit 1 data, with additional conservatisms added to compensate for differences between the units. Unit 1 has a 15x15 fuel design and Unit 2 has a 17x17 fuel design. Subsequently, when the Unit 2 specific boron concentrations had been calculated, the additional conservatisms were no longer needed. The revised calculation obtained the specific benefit of the more effective control rod pattern in Unit 2.

Question 3

Explain why the boron concentration data employed in the revised calculation of BAST volume is considered "more accurate" than those used in the earlier calculation.

Response to Question 3

As noted above in response to Question 2, the revised Westinghouse calculation of the BAST volume requirement more accurately used the Unit 2 specific data instead of the Unit 1 data with added conservatisms. The revised calculation relies on data generated with Unit 2 specific loading patterns.

Question 4

Explain how the conservatisms in the revised analysis will bound future cycles.

Response to Question 4

To bound future cycles, the revised calculation contains approximately a 10% margin in the difference between Mode 1 and Mode 4 boron concentrations. Also, the requested BAST volume requirement of 5650 gallons is significantly larger than the 4905 gallons calculated. Since Cycle 8 is expected to be relatively conservative compared with currently expected future cycles, the requested BAST volume should be bounding.

Question 5

Explain, in more detail, what the "Border" computer code does. Was "Border" used in your earlier calculations? If not, how does it differ from the methods used previously? Has this code ever been reviewed and approved by NRC for this application?

Response to Question 5

From our discussions with Westinghouse, "Border" automates tasks previously performed by hand. The underlying methodology does not differ from that used in the past. The NRC has not previously reviewed "Border".

This document has been prepared following Corporate procedures that incorporate a reasonable set of controls to ensure its accuracy and completeness prior to signature by the undersigned.

Sincerely,

E. E. Fitzpatrick
Vice President

dag

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