

50-456



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

October 3, 1996

Ms. Irene Johnson, Acting Manager
Nuclear Regulatory Services
Commonwealth Edison Company
Executive Towers West III
1400 Opus Place, Suite 500
Downers Grove, IL 60515

SUBJECT: PROPOSED DELETION OF THE BRAIDWOOD, UNIT 1 MID-CYCLE STEAM
GENERATOR TUBE INSPECTION

Dear Ms. Johnson:

In your letter dated August 2, 1996, you proposed to omit the Braidwood 1 mid-cycle steam generator (SG) tube inspection which you committed to conduct no later than October 15, 1996. The purpose of this inspection is to determine whether there are circumferential indications in the SG tubes at the top of the tubesheet in the roll transition zone. During the course of our review, we identified a need for additional information (an RAI) which we sent to you in our letter dated September 9, 1996. You responded to this RAI in three parts with the last response submitted on September 24, 1996.

While we have not completed our review of your responses, we have identified a need for further information before we can reach a decision on your proposal of August 2, 1996, cited above. We informed members of your staff by telephone on September 30, 1996, that we would need a few weeks to complete a thorough review of your extensive responses to our RAI. In light of that determination, we also stated in this telephone conference that we believed it was premature to meet with you on October 1, 1996, to discuss those portions of your responses which need further clarification and/or justification. We further stated that you should continue with your plans and preparations for the Braidwood 1 SG tube inspection presently scheduled to begin on October 11, 1996, in that we believed the effort required to complete our review and for you to resolve all outstanding issues would not allow us to reach a decision on your pending proposal until well after your present schedule for conducting the Braidwood 1 mid-cycle SG tube inspection.

In response to your request for a meeting with the staff in order to provide further clarification and/or justification for your responses, we have scheduled a meeting for October 4, 1996. To assist you in this regard, the attachment to this letter contains a list of items that need additional effort on your part. We note that these items represent only those issues we have identified to date in our review.

However, the staff continues to believe that there is a low likelihood that its review of your pending proposal can be completed successfully before the inspection schedule date. To this end, we believe it is still appropriate

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Ms. Irene Johnson

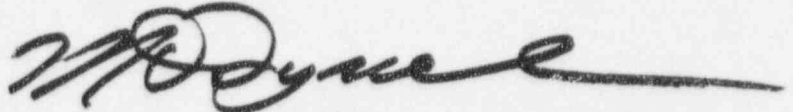
- 2 -

that you continue your plans and preparations for the scheduled Braidwood 1 inspection outage.

In that it is highly unlikely that your proposal to delete the Braidwood 1 mid-cycle SG inspection will be granted in the required time frame, we request that you inform us whether you want the staff to continue its review past October 11, 1996. Such a request, if submitted, should include the specific objectives and the required completion schedule of this staff review.

If you have any questions on these matters, please contact M. David Lynch at (301) 415-3023.

Sincerely,

A handwritten signature in black ink, appearing to read 'M. David Lynch', with a long horizontal flourish extending to the right.

M. David Lynch, Senior Project Manager
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Docket No. STN 50-456

Enclosure: As stated

cc w/encl: See next page

Ms. Irene Johnson

- 2 -

that you continue your plans and preparations for the scheduled Braidwood 1 inspection outage.

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If you have any questions on these matters, please contact M. David Lynch at (301) 415-3023.

Sincerely,

Original signed by:

M. David Lynch, Senior Project Manager
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Docket No. STN 50-456

Enclosure: As stated

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION
RELATED TO THE PROPOSED DELETION OF THE
BRAIDWOOD, UNIT 1 MID-CYCLE STEAM GENERATOR TUBE INSPECTION
DOCKET NO. STN 50-456

1. The data provided in Table 5 in the submittal dated September 24, 1996, indicate that a number of steam generator (SG) tubes burst axially during testing and several exhibited mixed mode cracking. Explain the basis for including these data in the burst correlations. Since both axial and circumferential flaws were identified in a number of the pulled tubes, discuss the uncertainty involved in using other data obtained from in-situ tests when the morphology of the cracking could not be definitively determined.
2. The staff has evaluated the data supplied by the licensee in Table 19b to verify the validity of the licensee's proposed correction factors of 0.58 and 0.76. Based on this evaluation, the staff has concluded that using fixed values to convert voltage data could result in significant errors in the analysis. This conclusion is based on the level of scatter observed in a sample of data provided in this table. The staff also assessed the correction factor used by the licensee to adjust 0.115-inch coil probe voltages to equivalent 0.080-inch coil probe voltages. The results of this staff assessment do not support the licensee's proposed correction factor of 0.78. Specifically, the staff's assessment indicates that the use of fixed values of correction factors to adjust voltages for different calibration procedures and probes can lead to significant errors in the adjusted voltages. In addition, the normalization values used by the licensee were non-conservative based on values determined in the staff's independent assessment. Accordingly, due to the high degree of scatter in the data, discuss whether it is more appropriate to bound the normalization factors at an elevated confidence level when adjusting voltages.
3. The correction factor for converting voltages from 0.115-inch coils to 0.080-inch coils varies significantly based on independent staff calculations using the data supplied in Table 19b as discussed in Item 4 below. This conclusion introduces uncertainty into the proposed voltage threshold for SG tube leakage. Discuss the effects of this uncertainty on your conclusions.

4. Clarify the normalization of voltage data. For example, in your response to Item 5 of the staff's request for additional information (RAI) dated September 9, 1996, and in the submittal dated August 2, 1996, it is stated that no calibration corrections were applied to measurements recorded when the probe voltage was set at 10 volts on the 100-percent through-wall hole. However, the values listed in Table 5 of the response to the previous RAI do not appear to correlate with data provided elsewhere in the submittal. For example, one of the six leakage datum has a reported average voltage of 1.66 volts. Applying a correction factor of 0.75 to adjust for probe coil differences results in a voltage greater than any of the data in Figure 14a. Clarify this apparent discrepancy.
5. Several values important in assessing the end-of-cycle (EOC) structural and leakage integrity of Braidwood 1 SG tubes have been modified since the submittal dated August 2, 1996. For example, the burst and leakage correlations in response to the prior RAI have been adjusted to account for industry material property data and revised values for analyst error. Accordingly, re-evaluate the Braidwood 1 EOC assessment considering all changes to the proposed methodology. Address the use of bounding voltage correction values as discussed in Item 3 above and the limiting growth rate distribution in light of the responses to Items 2 and 3 of the prior RAI.