

From: Thomas Alexion
To: RSCHEID@ENTERGY.COM
Date: 12/19/02 4:23PM
Subject: REVISED RAI ON USE OF METAMIC

Dick,

See the attached revised RAI.

Tom

REQUEST FOR ADDITIONAL INFORMATION
RELATED TO THE TOPICAL REPORT SUPPORTING
THE USE OF METAMIC IN SPENT FUEL POOL APPLICATIONS
ARKANSAS NUCLEAR ONE, UNITS 1 & 2

1. Appendix A describes the technical assessment of the B₄C distribution in Metamic.

One source of areal density variation across a plate of Metamic is variation in thickness across the plate. How does the areal density variation change with respect to the increase in thickness variance due to the manufacturing of larger panels? How were these areal density measurements obtained?

2. General questions on testing.

- a. How often were each of these tests performed? What is the reliability of the data acquired?
- b. Are there any full length inserts currently used in spent fuel pools? If so, were there any tests and/or inspections performed on these inserts? What were the results of these tests and/or inspections?

3. The physical properties and testing of the Metamic samples are described on pages 6 - 10 of Attachment 2 to the application dated August 8, 2002.

- a. Page 6 describes slight darkening observed on some of the coupons tested. What are the possible causes of this discoloration? Were there any other physical changes observed such as blistering, peeling or cracking of the coupons?
- b. The areal density of the coupons was stated to have no changes for both short-term and long-term testing. Describe how the areal density was determined for the coupons before and after both short-term and long-term testing. Include details on the areas tested, the technique, and the instrumentation.
- c. The description of mechanical properties on page 7 states that the coupons not subjected to elevated temperatures were used for pre-test data. Are these coupons from the same lot as those coupons used for all tests; i.e., short-term and long-term tests?

4. The corrosion testing of Metamic is described in pages 11 - 15 of Attachment 2 to the application.

- a. Were there any considerations for this testing to account for fluid movement, temperature fluctuations, radiation dose changes, and intermittent scratching of the surfaces at different instances during the test? If so, provide details of these considerations and their impact on the results.

- b. Details on the coupons tested are provided in a table on page 11 of Attachment 2. Provide details on the nature of the general scratches on the anodized metamic coupons. How were these scratches created? How long was each scratch? How deep was each scratch? Were there any residual metals found in the cracks prior to testing?
 - c. Discuss why the distribution of the coupons tested is weighted towards the 15 w/o coupons. Is there an expectation that the results of the 15 w/o coupons can be extrapolated for the 31 w/o coupons? If so, what is the basis for this expectation?
 - d. What types of chemicals were used to clean the coupons in order to remove impurities prior to anodizing? How "limited" were the local pits formed as described on page 13 of Attachment 2? Were there some areas of preferential pitting on the coupons?
 - e. What were the material changes of the general coupons with scratches? Were there any weight changes? Any changes in B_4C density? Was there any blistering, cracking, or flaking visible?
 - f. Were there any gases released during the formation of the oxide layer on the coupon; i.e., was bubbling observed coming from the coupon?
5. The resistance of Metamic to radiation damage is described in pages 16-18 of Attachment 2 to the application. What is the basis for the statements made in the 2nd paragraph of page 17? What is the typical "higher radiation dose" referred to in those statements?

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MESSAGE	726	12/19/02 04:23PM

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