

Mail Envelope Properties (3F04647B.B36 : 0 : 20628)

Subject: RAI FOR ANO-1
Creation Date: 7/3/03 1:14PM
From: Thomas Alexion

Created By: TWA@nrc.gov

Recipients	Action	Date & Time
entergy.com	Transferred	07/03/03 01:14PM
DMILLAR (MILLAR, DANA)		

Post Office	Delivered	Route
		entergy.com

Files	Size	Date & Time
ANO-1Metamic RAIEMCB.wpd		35792
MESSAGE	736	07/03/03 01:14PM

Options

Auto Delete:	No
Expiration Date:	None
Notify Recipients:	Yes
Priority:	Standard
Reply Requested:	No
Return Notification:	None

Concealed Subject:	No
Security:	Standard

To Be Delivered:	Immediate
Status Tracking:	Delivered & Opened

From: Thomas Alexion
To: MILLAR, DANA
Date: 7/3/03 1:14PM
Subject: RAI FOR ANO-1

Dana,

See the attached.

Tom

REQUEST FOR ADDITIONAL INFORMATION
MATERIALS AND CHEMICAL ENGINEERING BRANCH
REQUEST FOR LICENSE AMENDMENT DATED APRIL 2, 2003
ARKANSAS NUCLEAR ONE UNIT 1

1. The submittal references a topical report submitted to the staff on August 8, 2002. This topical report describes the physical and chemical properties of Metamic® as well as the test results supporting the use of Metamic® in fuel pool applications. The staff notes the types of coupons tested and discussed in that report; i.e., 15 weight percent (wt %) or 31 wt % B₄C, mill-finished or anodized.

Based on the information provided in the submittal, the staff requests the licensee to address the following:

- a. Identify if the 25 wt% B₄C Metamic® poison inserts to be used are mill-finished or anodized.
 - b. The topical report concludes that corrosion on both mill-finished and anodized Metamic® coupons is due to inadequate cleaning of the surface. Discuss the cleaning technique to be used on the inserts prior to installation, its acceptability, and its expected effectiveness in controlling impurities.
 - c. If anodized inserts are to be used, discuss the anodizing process used for these inserts and its effectiveness in reforming the protective oxide layer in the event the surface should be scratched. Discuss the process used to ensure that the protective oxide layer will be formed adequately during installation.
2. The Metamic® coupon sampling program is briefly discussed on page 5 of Attachment 1 to the submittal. The licensee commits to establishing this program to monitor the physical and chemical properties of Metamic® over time. Metamic® coupons will be suspended on a mounting tree and inserted into an empty fuel cell in a rack that is surrounded by spent fuel assemblies. A total of 10 coupons will be created from the same lots that will be used to manufacture the inserts.

Metamic® is a new material to be used in the spent fuel pool environment. While the staff agrees that a coupon sampling program is prudent and critical in verifying the assumptions used in the spent fuel pool criticality analysis, details of this program were not provided in the submittal. Therefore, the staff requests that the licensee discuss the following:

- size and types of coupons to be used; i.e., similar in fabrication and layout to the proposed insert including welds and proximity to stainless steel;
- technique for measuring the initial B₄C content of the coupons;
- simulation of scratches on the coupons;
- frequency of coupon sampling and its justification; and
- tests to be performed on coupons; e.g., weight measurement, measurement of dimensions (length, width and thickness), and B₄C content.