

NRR-PMDAPEm Resource

From: Wasik, Chris [Chris.Wasik@fpl.com]
Sent: Friday, March 16, 2012 4:42 PM
To: Orf, Tracy
Cc: Abbott, Liz; Hoffman, Jack; Howard, Angeline; Kabadi, Jay
Subject: St. Lucie Units 1 & 2 - METAMIC Inserts

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Trace,

As discussed in the St. Lucie Unit 1 and Unit 1 EPU License Amendment Requests (ML103560419 & ML110730116), Attachment 5, Section 2.8.6.2, FPL will be installing METAMIC™ inserts in the spent fuel storage pools. In a recent conversation, you indicated that a technical reviewer was interested in the boron carbide (B₄C) content of the St. Lucie METAMIC™ inserts. In particular, you noted that there was a question if the B₄C content could exceed 31 w/o, because an EPRI study demonstrated a degradation in mechanical properties above 31 w/o.

EPRI Report 1003137, Qualification of METAMIC for Spent-Fuel Storage Applications, October 2001, discusses testing performed on METAMIC™. Page 7-2 of this report provides a summary of the results of accelerated radiation testing and attributes the degradation in mechanical properties "...to fast neutron embrittlement of the aluminum alloy matrix which would not be a factor in wet or dry storage applications." Since the St. Lucie application of METAMIC™ is limited to fuel storage, there is no concern for this type of degradation.

The St. Lucie METAMIC™ inserts are described in responses to NRC requests for additional information (FPL letters L-2011-523 and L-2011-524, dated December 27, 2011; ML11364A044 and ML11364A043 respectively). These letters include a description of the METAMIC™ inserts and note that a minimum B₄C content of 24.5 w/o is specified. The letters also discuss the sample coupons to be used in the surveillance program and that "The coupons are identical in composition and manufacturing process as the METAMIC™ inserts." FPL has received the 20 METAMIC™ coupons to be installed in the spent fuel pools (10 per unit). The Certificate of Compliance provided with the coupons documents the B₄C content for each of the 20 coupons. The B₄C content of the St. Lucie coupons ranges from a low of 25.07 w/o to a high of 25.98 w/o. None of the St. Lucie coupons had B₄C content of 31 w/o or greater.

Please contact me if you have any further questions.

Regards,

Chris Wasik

Acting LAR Project Manager
St. Lucie Plant Extended Power Uprate Project
772-467-7138

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From: Wasik, Chris

Created By: Chris.Wasik@fpl.com

Recipients:

"Abbott, Liz" <Liz.Abbott@fpl.com>
Tracking Status: None
"Hoffman, Jack" <Jack.Hoffman@fpl.com>
Tracking Status: None
"Howard, Angeline" <ANGELINE.HOWARD@fpl.com>
Tracking Status: None
"Kabadi, Jay" <Jay.Kabadi@fpl.com>
Tracking Status: None
"Orf, Tracy" <Tracy.Orf@nrc.gov>
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