DE / App-B / #5 RES-EX

From: Amy Cubbage NRR RES
To: Rubin, Stuart
Date: 3/26/02 8:54AM
Subject: Re: Exelon Paper on Fuel Qualification

Stu,

release NRR

I would be happy to provide Goutam with additional info. However, it should be noted that the Exelon fuel qualifications paper went to Goutam via the distribution your "tasking memo". At this time have not requested EMEB or EMCB to review that paper.

Amy

>>> Stuart Rubin 03/26/02 08:39AM >>> RES
Goutam:

I think your concerns are valid. However it is important that the staff's issues focused on PBMR fuel qualification testing be considered in the context of all three white papers that have been provided on the subject of PBMR fuel quality and performance. I believe that many if not most of the issues you have raised (e.g., need to increase the ceramic coating thickness or the need to provide abrasion resistance) are discussed in large part in the other two white papers (that may not have yet seen). **Amy should provide these to you as well for additional important background.**

Stu

>>> Goutam Bagchi 03/26/02 08:24AM >>> NRR
Stu,

release NRR

I understand your statement about the fact that every fuel particle does not need to maintain integrity following the burn up and exposure to various "loads." However, you point out that Exelon intends to "test with bounding conservative conditions compared to the actual reactor conditions." In my view, the type of qualification tests I discussed is most likely to identify design or manufacturing process flaws of the fuel that a bulk test might never do. In EQ tests for example, certain seal materials exhibited shrinkage following radiation, and this allowed moisture to get in and compromised functionality. John had asked an important question about acceptance criteria. I do not have an answer to that. If we put our heads together, we should be able to think of something. Nevertheless, running the fuel particles through qualification tests in pre-determined sequence and examining the fuel condition after the test will give us a lot of insight regarding the need to increase the ceramic coating thickness or the need to provide abrasion resistance etc. This kind of decision would have to be taken early on.

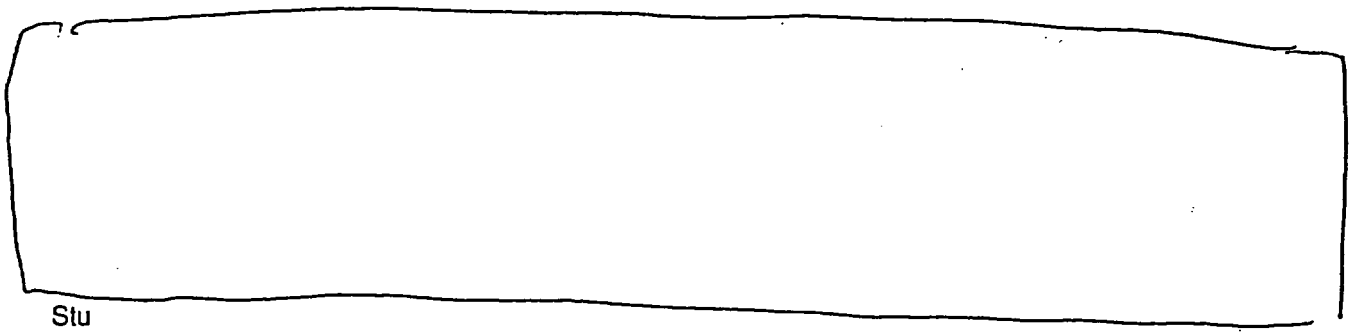
Thank you,
Goutam
301-415-3305

>>> Stuart Rubin 03/25/02 07:53PM >>> RES
Goutam:

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 5
FOIA- 2003-0032

Ex 5

Portions withheld EX 5



EX5

Stu

>>> Goutam Bagchi 03/25/02 04:57PM >>> NRR

Amy,

I received a copy of the letter from John Flack to Farouk Eltawila dated March 19, 2002. It contains several attachments, and one of these is on Fuel Qualification. Just quickly glancing through it, it occurred to me that the fuel qualification process should not be all that different from environmental qualification of equipment/devices. Radiation, temperature, pressure, drop heights, moisture, oxygen exposure, vibratory loads should all be considered as stressers, and the fuel should be subjected to the applicable stresses in pre-determined sequences (these could be several sets of sequences). After the stress tests are done, they should be examined to determine whether or not they pass the qualification tests. They have not proposed any such program. I believe that Exelon should be given a quick feed back on this.

release NRR

Thank you,
Goutam
301-415-3305

CC: Bagchi, Goutam; Caruso, Ralph; Eltawila, Farouk; Flack, John; Meyer, Ralph