From: Donald Carlson
To: David Tang, Elaine Keegan, Geoffrey Hornseth, K...
Date: Fri, Apr 21, 2000 3:28 PM
Subject: UMS Notchless Tubes, Thinner Boral??

Team Tim,

We need to discuss some of the latest sneak-attack gak from NAC. I am bothered by two details in the revised UMS drawings (for MY ;-):

1. Drawings 790-575, 790-581, and 790-605
 - Remove notches from tube bottom

I always had the distinct impression that those notches provided much or all of the pathway for water to flow freely to and from the fuel tubes. Without the notches, what is the basis for concluding that preferential flooding of the fuel tubes is not credible and does not need to be analyzed?

2. Drawing 790-581
 - Detail A-A, Dim (.075) changes to .075 +/- .005

This rather generous tolerance exacerbates two marginal aspects of the poison panel design that I mentioned in the UMS SER:

(a) The large negative tolerance (-.005) makes it that much harder to pack enough natural B4C particles into the "nonstandard" Boral plate to achieve the specified minimum poison areal density of 0.025 g B-10/cm2. (Also, note that the drawing is now missing the 2 in cm2.) We now have a public comment on the reduced binder content in the "nonstandard" Boral and the implications for material integrity.

(b) The large positive tolerance (+.005) makes it a bit easier to pack in the required poison without getting the sloppy joe effect (i.e., too little binder). The only down side is that the tolerance makes the flux traps 0.01 inch narrower on the average than analyzed. On balance, however, I find it easier to deal with the positive tolerance than the negative one.

Of course, we (and now a member of the public) would have preferred that NAC use either enriched boron or else a slightly larger nominal plate thickness for the Boral.

Don

CC: Earl Easton

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