

From: NPL / Steven Long
To: Jin Chung; Patrick O'Reilly RES
Date: 4/1/02 7:20AM
Subject: Re: Large LOCA Treatment in Revision 3i SPAR Models

Release with
positive

Pat and Jin,

The Davis Besse IPE submittal dated February 1993 clearly states in multiple places that the medium LOCA in their model is between 0.02 and 0.5 square feet. That is equivalent to break diameters between 2 inches and 9 inches. Since Davis Besse has a unique combination of ECCS and RCS characteristics (B&W RCS with intermediate-head SI pumps), I don't think we are in a very good position to argue with them unless we have plant-specific thermal-hydraulic calculations that show they don't need the SI pumps for breaks as large as 6-inches to 9-inches in diameter. They claim that the 9-inch diameter is the "smallest break that could be accommodated solely by the LPI and core flood tanks."

Anyway, that was a 1993 submittal, so we have asked the plant for current info, in case their thinking has changed. I will make sure that both of you get the info when I do. It might be appropriate to change the notes in the Davis Besse SPAR manual.

Steve

>>> Patrick O'Reilly 03/28/02 01:34PM >>>

RES

I told you that I would check with INEEL and confirm the source(s) of the data that form the basis for the treatment of large break LOCAs in the Revision 3i SPAR models. I spoke to Bob Buell, who is the PI for the Revision 3 SPAR model development project at INEEL, and here is what he told me.

As identified in the footnotes to Table B-1 in the Davis-Besse Revision 3i SPAR model users manual, the large LOCA initiating event frequency which is used in developing the Revision 3 SPAR models comes from the RES-sponsored Initiating Event Report, NUREG/CR-5750, *Rates of Initiating Events at U.S. Nuclear Power Plants, 1987-1995*, Table 3-1, published in February 1999. The value that is incorporated in the model is actually the per hour occurrence probability, $5.7E-10$.

The large LOCA break size criterion was determined from the results of a review of information published in several sources, including FSARs, the Daily Events Analysis Manual, plant PRAs, topical reports, and IPEs, to name a few. The consensus of these sources indicated that the range of large LOCA break sizes was about 5 in. in diameter and greater. So that is the size that was selected as the break criterion. As I said, the basis came from a number of sources, of which IPEs were only one source. The 5-inch diameter criterion has been used for all PWR Revision 3 SPAR models, regardless of NSSS vendor.

Y-3