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April 1, 1981

IR-0481-03

Mr. J. F. Stolz
Operating Reactors Branch #4
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: Arkansas Nuclear One-Unit 1
Docket No. 50-313
License No. DPR-51
Loft L3-1 and Semiscale S-07-10D Test
(File: 1510.3)

Gentlemen:

Mr. Reid's letter of February 24, 1981 to all B&W licensees proposed further post-test analysis of the subject test. We have reviewed the stated objectives and test results. The results of our review are discussed below.

The B&W prediction of the L3-1 test compared very favorably with the other Vendor predictions. All of the predictions showed the clearing of liquid from the pump loop seal. However, the test did not produce this result due to a bypass flow path which existed between the vessel upper head and the downcomer annulus, as well as another bypass between the hot- and cold-leg pipes due to leakage through the reflood assist valves. EG&G calculations indicate that this leakage path in LOFT is approximately 3 percent of the core flow, or comparable to prototype valves. However, the actual leakage path cannot be measured directly but only indirectly inferred by assuming a value which leads to the prediction agreement with the test. Therefore, the leakage flow from L3-1 must be further evaluated before additional analytical work could be justified. In addition, on page 40 of EGG-CAAP-5255 (LOFT L3-1 Preliminary Comparison Report) it is stated that B&W was the only Vendor who accurately calculated the behavior of the secondary side of the steam generator. For these reasons, we are of the opinion that only a marginal benefit at best could be realized from further evaluation of the L3-1 test.

Regarding the S-07-10D test, the situation is a little different. None of the Vendor predictions characterized the test very well. However, we feel this is due in large measure to insufficient information to model the steam side of the steam generator, as well as insufficient data on the valve and associated piping. There is also insufficient information to adequately model the steam separator. Based on these reasons, we are of the opinion that our current results are not unreasonable considering the conservative features of the model B&W used to predict the experiment.

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Not withstanding the above arguments, we will provide to you our qualitative opinion of the impact of identified test uncertainties and model conservatisms on the results previously provided on the blind predictions of L3-1 and S-07-10D. This information should adequately address the NRC staff's concern described in Item 4.1.1.1(2) of NUREG-0565 and later incorporated by reference as part of Item II.k.3.30 of NUREG-0737. Due to the extensive manpower commitment on the analysis of the L3-6 test, which was just completed and submitted to Dr. Sheron on March 23, as well as a continuing effort to respond to the requirements of NUREG-0737 and others, we are unable to provide a detailed analysis at this time. We will provide the additional information described above by June 1, 1981.

Very truly yours,

David C Trimble

David C. Trimble
Manager, Licensing

DCT:DRH:tw