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March 19, 1987

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Gentlemen:

Subject: Docket No. 50-206
TMI Action Plan Items II.K.3.30 and 31
Small Break LOCA Methods
San Onofre Nuclear Generating Station
Unit 1

Reference: Letter, M. O. Medford, SCE, to G. E. Lear, NRC, TMI Action Plan Item II.K.3.30 and 31, Small Break LOCA Methods, July 11, 1986

The referenced letter provided the San Onofre Nuclear Generating Station, Unit 1 (SONGS-1) response to post-TMI Item II.K.3.31. The letter indicated that as part of the Southern California Edison (SCE) response to the subject TMI items regarding the SBLOCA evaluation, SCE participated in the Westinghouse Owners Group development of the NOTRUMP SBLOCA model. The NOTRUMP SBLOCA Evaluation Model (EM), developed for better estimate SBLOCA modeling, was approved for licensing calculations by the NRC in May 1985. However, NUREG-0737 II.K.3.31 required that each license holder or applicant submit a new SBLOCA analysis utilizing the latest NRC approved methodology. The NOTRUMP generic study was thereby undertaken by Westinghouse in order to satisfy the requirements of NUREG-0737 II.K.3.31 on a generic basis, in accordance with the relaxations identified in NRC Generic Letter 83-35. The study indicated that the SBLOCA results obtained using the previous NRC approved Westinghouse SBLOCA EM, WFLASH, were conservative and thus acceptable for showing compliance with 10 CFR 50.46. Since SONGS-1 has Westinghouse stainless steel fuel cladding, the NRC requested that SCE determine whether the WCAP-11145 analyses (which assume zircaloy fuel cladding) are applicable to SONGS-1 and a brief explanation of the rationale. Accordingly, the following information is provided.

Section 2 of WCAP-11145 discusses the NOTRUMP and WFLASH model differences which account for the contrast in peak clad temperatures (PCTs) for the cases compared. Essentially, NOTRUMP is better able to predict reactor coolant system response during a SBLOCA due to enhanced modeling of the mass and energy distribution during such a transient. Among the improvements added to NOTRUMP include a more detailed nodalization scheme,

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vertical node stacking, relative slip modeling and modeling of non-equilibrium behavior. The combination of these thermal-hydraulic improvements increased the accuracy of the mass and energy distribution predictions for a SBLOCA transient. It is important to note that these improvements are not related to the type of cladding. Therefore, the conclusions reached in WCAP-11145 should be applicable to SONGS-1.

Furthermore, the option to perform a stainless steel fuel cladding SBLOCA analysis with NOTRUMP is available. Analogous to WFLASH which predicts a PCT of 864°F, the NOTRUMP coding changes necessary to model stainless steel fuel cladding include modifying the cladding metal properties (i.e., heat capacity, thermal conductivity) from zircaloy to stainless steel and eliminating the potential for clad oxidation (i.e., no metal-water reaction, therefore no oxide layer and no exothermic heat of reaction). These changes will allow NOTRUMP to accurately model the mass and energy distribution of a SBLOCA transient for SONGS-1, with no detriment to the NOTRUMP thermal-hydraulic improvements discussed previously. Therefore, should a NOTRUMP stainless steel analysis be performed for SONGS-1 and compared to the existing WFLASH stainless steel SBLOCA analysis, it is expected that the WFLASH results would remain conservative.

If you have any questions regarding the above discussed information, please let me know.

Very truly yours,

M. O. Medford / D. F. Pilmer

cc: R. F. Dudley, NRR Project Manager, San Onofre Unit 1
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