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 MIRAGLIA, F. Licensing Branch 3

SUBJECT: Submits response to Item 1 to NRC request for addl info to resolve seven confirmatory items re revised analysis of reactivity initiated A00.

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 TITLE: PSAR/FSAR AMDTS and Related Correspondence

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Southern California Edison Company

SCE

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K. P. BASKIN
MANAGER OF NUCLEAR ENGINEERING,
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November 24, 1981

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Director, Office of Nuclear Reactor Regulation
Attention: Mr. Frank Miraglia, Branch Chief
Licensing Branch No. 3
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: Docket Nos. 50-361 and 50-362
San Onofre Nuclear Generating Station
Units 2 and 3



During the week of October 26, 1981 the NRC requested additional information in order to resolve seven confirmatory items. Responses or commitments to provide responses to these seven confirmatory items were provided by letter from SCE dated November 10, 1981. Enclosed per our commitment are sixty-three (63) copies of the response to Item 1, Revised Analysis of Reactivity Initiated AOO for San Onofre Units 2 and 3.

If you have any questions or comments concerning this information please contact me.

Very truly yours,

K P Baskin

K. P. Baskin
Manager of Nuclear Engineering
Safety and Licensing

Enclosures

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A PDR

Core Performance Branch Item

Revised Analysis of Reactivity Initiated AOO for San Onofre Units 2 and 3

Amendment 24 to San Onofre Units 2 and 3 was submitted in April 1981. Included in this Amendment was a revised analysis of the part-length CEA subgroup drop event which is considered an anticipated operational occurrence. I do not know the reason for this revised analysis, particularly since the SONGS 2 and 3 SER and Supplement 1 have already been issued and this event was not an open item. The following are some specific questions which I believe should be addressed by Southern California Edison Company:

1. Why has the part-length CEA subgroup drop event been re-analyzed?
2. Why has the time to low DNBR trip signal for this event increased from 0.6 to 3.3 seconds?
3. Why were the moderator temperature coefficients for the part-length CEA subgroup drop cases assuming dropped CEA reactivity worths of +.04% and +.031% changed from the most positive values to the most negative values? Does not the most positive DNB result in the maximum core power level for positive initial reactivity insertions?
4. Should the maximum core power given in Table 15.4-15 be 108.2% instead of 113.2%?
5. Since the most rapid approach to the DNB SAFDL can be caused by the part-length CEA subgroup drop, what effect does the re-analysis have on Technical Specifications in regard to core thermal margins?

RESPONSE

- 1 & 2. The original FSAR analysis assumed a trip time of 0.6 seconds. This was based on a preliminary evaluation of the CPC design at the time of FSAR preparation. As the CPC design approached completion, it was discovered that it was possible for the trip on Part Length CEA Subgroup Drop (PLSGD) to be delayed as long as 3.3 seconds. The transient was thus re-analyzed to reflect this change and the FSAR was updated.
3. The analyses performed on the PLSGD considered Moderator Temperature Coefficients (MTC) from $+0.5 \times 10^{-4}$ to -3.3×10^{-5} . Each case presented (see FSAR Table 15.4-10), represents the limiting case resulting from the MTC parametric study. However, for the PLSGD, the results are relatively insensitive to MTC. This is due to the fact that, in the first 4.0 seconds, the core average coolant temperature does not change appreciably. Since the transient is terminated within about 4.0 seconds, moderator feedback is relatively unimportant to the PLSGD. The decrease in thermal margin is due almost entirely to the shift in axial heat flux distribution caused by the change in axial power distribution.
4. The maximum core power given in Table 15.4-15 should be 108.2%. The FSAR will be corrected.

5. Although the PLSGD represents the most rapid approach to the DNB SAFDL, it does not represent the maximum decrease in thermal margin. The total loss of coolant flow is the limiting DNB event in that it requires more initial thermal margin to prevent violation of the DNB SAFDL. The loss of flow establishes DNB related Technical Specification limits. Therefore, this change in trip time for the PLSGD does not affect the Technical Specifications.