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SUBJECT: Responds to 830701 & 07 telcon requests to reevaluate 830307 core protection calculator (CPC) schedule & to implement CPC software corrections. Secondary calorimetric power & plant power differences clarified.

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K. P. BASKIN
MANAGER OF NUCLEAR ENGINEERING,
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July 14, 1983

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Director, Office of Nuclear Reactor Regulation
Attention: Mr. George W. Knighton, 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

The NRC's letter of February 14, 1983 requested a schedule for correction of the core protection calculator (CPC) software error involving application of local power density (LPD) penalty factors associated with failure of both Control Element Assembly Calculators (CEAC). SCE's letter of March 7, 1983 responded to this NRC request by indicating that the CPC software error would be corrected during the first refueling outage of each unit. This schedule was based on the fact that there is adequate alternate protection provided by the CPC reactor trip logic to permit plant operation as discussed in CE's letter from A. E. Scherer to R. C. DeYoung (NRC) dated August 4, 1982.

During recent telephone discussions between SCE (F. R. Nandy) and the NRC (L. Phillips) on July 1, and 7, 1983, the NRC requested that SCE reevaluate the schedule proposed in the March 7, 1983 letter and that corrections to the CPC software be implemented as soon as practicable. The NRC also requested additional clarification regarding the differences between the indicated Secondary Calorimetric Power level (49.83%) and the indicated Plant Power level (52.13%) at San Onofre Unit 2, which were observed by the NRC staff during their CPC audit of San Onofre Units 2 and 3 on December 7 and 8, 1982.

With respect to the schedule for correcting the CPC software, it was indicated that SCE will consider the NRC's request and advise the staff of our position by approximately July 24, 1983.

With respect to the differences observed, by the NRC staff during the CPC audit, between the levels indicated for Secondary Calorimetric Power and Plant Power, SCE provided the clarification necessary to resolve the NRC's concerns and agreed to formally transmit the clarification provided during the discussion. Specifically it was indicated during the conversation that the following COLSS values were displayed when the differences in power levels were observed by the NRC staff during their CPC audit:

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July 14, 1983

<u>Point ID</u>	<u>Parameter</u>	<u>Value</u>
CV90000	Plant Power	52.13%
CV9005	Secondary Cal Power	49.83%
CV9196	Calibrated Delta T Power	51.82%
CV9197	Calibrated Turbine Power	52.13%

The Plant Power is the value displayed to the operator and compared with the licensed power and the power operating limits.

The secondary calorimetric power is used in both the COLSS and CPC power calibration process.

The Plant Power calculated by COLSS is selected from the maximum of the calibrated turbine power and the calibrated delta T power. The secondary calorimetric power is calculated in the 30 second block of COLSS calculations and is considered the most accurate method for determining steady state power. The delta T power and turbine power are calculated in the 1 second block of COLSS calculations. These values are calibrated to the secondary calorimetric power. This calibration process is gradual, requiring a long period of steady state operation to achieve a complete calibration of the turbine power and delta T power with the secondary calorimetric.

During start up, preliminary coefficients are installed in the correlation used for the COLSS turbine power calculation. More accurate coefficients are determined after the 100% power startup tests are completed and are installed prior to completion of the start up testing program. At the time of the NRC meeting the preliminary constants for the turbine power correlation resulted in calculations of turbine power which exceeded the secondary calorimetric power by a few percent. Steady state operation had not been maintained for a sufficient period of time to result in a complete agreement between the calibrated turbine and delta T power with the secondary calorimetric. Therefore, the calibrated turbine power (CV9717) was selected and displayed as the Plant Power (CV9000).

If you have any questions or comments, please let me know.

Very truly yours,

M. J. Meador for KPB

cc: H. Rood (Open by addressee only)
A. E. Chaffee (NRC Site Inspector)