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June 17, 1981

Director, Office of Nuclear Reactor Regulation
Attention: D. M. Crutchfield, Chief
Operating Reactors Branch No. 5
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: Docket No. 50-206
Systematic Evaluation Program
San Onofre Nuclear Generating Station
Unit 1

Your letter of March 2, 1981, forwarded completed technical evaluation reports for the following SEP topics.

VIII-2 Diesel Generators
VIII-4 Electrical Penetrations of Reactor Containment

Your letter indicated that the assessments compared San Onofre Unit 1, as described in the docket, to current licensing criteria. You requested that we inform you of differences in the Unit 1 design from the licensing basis assumed in the assessments. The results of our review of the topic assessments are provided as an enclosure to this letter.

If you have any questions regarding the enclosed, please let me know.

Very truly yours,

W C Moody

Enclosure

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ENCLOSURE

VIII-2 Diesel Generators

Based on our review of this topic assessment, the facts upon which this assessment is based are correct. However, it is noted that with regard to the diesel generator testing evaluation presented in Section 3.3, the guidance utilized for the testing program at the time of installation of the diesel generators was the current licensing criteria, Regulatory Guide 1.108 dated August, 1976. Since the testing program has been assessed against the current Regulatory Guide 1.108, Revision 1, dated August, 1977, the deficiencies in the Unit 1 testing program are the differences in the two regulatory guides.

VIII-4 Electrical Penetrations of Reactor Containment

Section 3.0, paragraph 1, indicates the penetrations are assumed to be at the LOCA temperature. The basis for this assumption is not obvious since the penetration hermetic seal may never reach the peak temperature inside containment following a LOCA. Assuming the initial temperature of the penetration to be the LOCA temperature is not realistic nor appropriate.

Section 3.0, paragraph 2, indicates the rating of the hermetic seal for the low voltage penetration as 90°C. This rating represents the rating of the conductor inside the penetration rather than the hermetic seal. The vendor data lists the 30 minute temperature rating of the penetration seals as 133°C.

Section 3.0, paragraph 5, indicates that for breaker ratings which indicate a minimum and maximum fault clearing time, the maximum time was used for conservatism. It appears that this is referring to the time dial settings of the relays which actuate the breakers. Relay calibration data, relay curves and time dial settings are available for each of the breakers. Relays are precision devices and are calibrated to operate at specified current values with specified time delays. Use of a minimum and maximum fault clearing time is not appropriate.

Therefore, the time dial settings for the following breakers are provided:

Breaker	Time Dial Setting
1202	7.0
11A03	6.15
11A04	4.5
11C01	7.5

These settings correspond with the information provided on the relay curves for the above breakers provided in our June 15,, 1979 submittal.

Section 3.1, paragraph 2, indicates the temperature limit for the hermetic seal to be 90°C. As discussed previously, this value is not appropriate and should be 133°C.

Section 3.1.1 indicates the low voltage penetration WPC-23, does not meet the current requirements of Regulatory Guide 1.63 and IEEE 317. This is based on the 90°C rating for the penetration seal. Since this rating is not correct, the conclusions should be reevaluated.

Section 3.2, paragraph 1, indicates that the penetration limiting temperature is reached in 1.04 seconds. It is assumed the calculation utilized 1-500 MCM conductor per phase. The reactor coolant pumps are fed by 2-500 MCM conductors per phase. Utilizing 2-500 MCM in the calculation results in a clearing time of 4.18 seconds.

Section 3.2, paragraph 2, indicates the primary breaker will not operate in sufficient time to clear any faults. The reactor coolant pumps are protected by a C05 overcurrent relay. This relay is equipped with both instantaneous and time delay trip mechanisms. The instantaneous trip mechanism is used to provide protection against short circuits and will trip the breaker instantaneously for any line currents greater than 9000 amps. The typical operating time for this relay-breaker combination is 6 cycles or approximately .1 seconds. The time delay portion of the relay is used to provide overcurrent protection for the pump motor. Since the primary breaker is used as a motor starter, the time delay is required to keep the breaker from tripping during motor startup. Since the primary breaker will interrupt any line current greater than 9000 amps in approximately .1 seconds and the critical clearing time is 4.18 seconds, it is concluded that the primary breaker provides adequate protection for the penetration.

Section 3.2, paragraph 3, indicates that the alternate secondary breaker will not operate to clear any faults. Based on the relay curves, the relay calibration data and the time dial setting, the alternate secondary breaker will interrupt rated fault current in approximately .3 seconds. Since the critical clearing time is 4.18 seconds, it is concluded that the alternate secondary breaker provides adequate protection for the penetration.

Section 3.2.1 indicates that only the normal secondary breaker will allow the penetration to meet the requirements of Regulatory Guide 1.63 and IEEE 317. Based on the discussion above, it is concluded that the penetration meets the requirements for the primary, normal and alternate secondary breakers.

Section 4.0 should be revised accordingly to include the above discussion.