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August 31, 1990

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

Gentlemen:

Subject: Docket No. 50-206
SEP Topics: III-2, Wind and Tornado Loadings
 III-4.A, Tornado Missiles
San Onofre Nuclear Generating Station
Unit 1

This letter is to inform you that modifications to upgrade the plant resistance to tornado events will not be necessary. This determination is based on the enclosed analysis which quantifies the risk of tornado induced core damage at San Onofre Unit 1. The analysis demonstrates that the risk of core damage associated with a tornado event is so low that the proposed modifications offer a negligible incremental risk reduction and are not cost beneficial.

Background

As part of the Systematic Evaluation Program (SEP) topics III-2 and III-4.A entitled "Wind and Tornado Loadings" and "Tornado Missiles," respectively, licensees were required to address damage which could result from a tornado. Our October 10, 1986 letter proposes plant modifications to upgrade plant systems to ensure safe shutdown following a tornado event. The tornado modifications were then tentatively scheduled by our November 17, 1987 letter for the Cycle 12 refueling outage.

In discussions with the NRC staff regarding the completion of open issues prior to obtaining a Full Term Operating License (FTOL), we expressed a concern about the relative importance of the tornado modifications compared to other FTOL projects (such as the planned upgrades to the recirculation system), considering the geographical location of San Onofre Unit 1. Subsequently, our October 2, 1989 letter indicated that we believed the tornado modifications were of low safety significance and that we planned to perform an analysis demonstrating that these modifications are not required. We have since completed the risk analysis which confirms that the tornado modifications are not required. A copy of the analysis is enclosed with this letter.

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Summary Of Evaluation

A plant specific probabilistic risk assessment (PRA) has been used to evaluate the vulnerability of San Onofre Unit 1 to tornado damage. This PRA has been used to determine the overall plant vulnerability to tornado hazards (i.e., winds and tornado missiles) and quantify the risk reduction achieved through implementation of the tornado modifications. By comparing the risk calculated with the plant in its present configuration to the risk calculated with the proposed tornado modifications installed, the risk reduction provided by the modifications can be determined.

Results of this analysis show that the total tornado related contribution to the core damage frequency is $1.65E-06$ per year. This represents a very small portion of the total San Onofre Unit 1 core damage frequency of approximately $1E-04$ per year. The results also show that implementation of the proposed modifications results in a negligible reduction of the core damage frequency resulting from tornado initiated events ($1.0E-6$ per year). Because the risk of tornado induced core damage is small, installation of the proposed modifications offers negligible improvement in the overall risk for tornado events for San Onofre Unit 1.

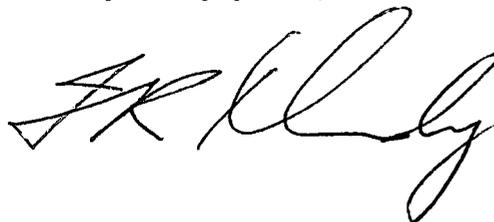
The cost of the tornado modifications are currently estimated at \$10 million and \$52 million in 1990 dollars for the 10^{-5} and 10^{-7} annual recurrence interval tornados, respectively. The calculated incremental cost benefit for the modification is one million dollars. The methodology used to arrive at this figure is explained in Section 5.0 of the enclosed evaluation.

Conclusion

Based on the low probability of tornado induced core damage at San Onofre Unit 1, the small incremental risk reduction that would be achieved through implementation of the proposed modifications, and the low cost benefit value, modification of San Onofre Unit 1 beyond its current configuration is not necessary for continued safe operation of the plant.

If you have any questions on this matter, please do not hesitate to call me.

Very truly yours,



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Enclosure

cc: J. B. Martin, Regional Administrator, NRC Region V
C. Caldwell, NRC Senior Resident Inspector, San Onofre Units 1, 2 and 3