UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

March 17, 1981

The Honorable Joseph M. Hendrie
Chairman
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: REPORT ON THE SAN ONOFRE NUCLEAR GENERATING STATION UNITS 2 AND 3

Dear Dr. Hendrie:

During its 251st meeting, March 12-14, 1981, the Advisory Committee on Reactor Safeguards completed its review of the application of Southern California Edison Company, et al, for licenses to operate the San Onofre Nuclear Generating Station Units 2 and 3 (SONGS 2 and 3). The Committee considered related seismic and geologic issues during its 250th meeting, February 5-7, 1981, and reported on these matters in its letter of February 10, 1981. Plant features were considered during Subcommittee meetings in Washington, DC on February 18, 1981 and March 11, 1981. During its review, the Committee had the benefit of discussions with the Applicant, Combustion Engineering, Inc. (CE), Bechtel Power Corporation, and the Nuclear Regulatory Commission Staff. The Committee also had the benefit of the documents listed.

SONGS Units 2 and 3 utilize CE Nuclear Steam Supply Systems with design power levels of 3410 MWt each. Control of both units will be accomplished from separate facilities within a shared control room. SONGS Unit 2 is the second CE plant to utilize 16x16 fuel. The containment buildings are prestressed concrete with a design pressure of 60 psig and a volume of 2.3 million cubic feet.

SONGS Unit 2 is the second CE-designed nuclear plant to use a digital computer as part of the reactor protection system. The computerized portion of the system was reviewed extensively by the NRC Staff and by the Committee during the review of Arkansas Nuclear One Unit 2 (ANO-2). The operating experience at ANO-2 and modifications to the software since the ANO-2 review were the subject of a Subcommittee meeting held on February 24, 1981. The ACRS believes the operating experience to date has been favorable. A data tie between the plant safety computer and the plant process computer has been provided, and its safety value is under review by the NRC Staff. The ACRS believes this feature is an asset to safety and recommends that it be retained on a permanent basis.

The Applicant described the organization of the plant staff, including the number of individuals engaged in the startup program, maintenance, engineering, operations, and health-physics. The compositions, duties, and interrelationships of the Safety Review Groups were reviewed. Training programs

were also discussed. The Committee believes the Applicant is emphasizing plant staffing and personnel training, but that extensive further effort will be required to have staffing completed in accord with the Applicant's proposed operating schedule. The Committee further notes that the NRC criteria for staffing and training of operational support personnel are inadequately defined. The Committee recommends that the NRC Staff develop improved bases for judging the adequacy of the qualifications, training, and organizational structure for support personnel, especially in the areas of maintenance and water chemistry control.

The Applicant presented information on operating procedures for plant accidents. The procedures are organized by logic diagrams to aid the operators in diagnosing the accident and in providing instructions for corrective actions. The Committee notes that the SONGS Units 2 and 3 procedures represent a significant improvement over previous standard practice, but the Committee encourages continuing efforts to improve further the manner in which guidance is provided to operators in emergencies. We also recommend that the Applicant review procedures and training provided to deal with the occurrence of an earthquake to confirm that the guidance provided is adequate. We recommend that the NRC Staff include this matter in its reviews of emergency procedures.

NUREG-0737, "Clarification of TMI Action Plan Requirements," requires an unambiguous, easy to interpret indication of inadequate core cooling in nuclear plants. Core exit thermocouples and heated junction thermocouples located at discrete axial locations are part of the system proposed to meet this requirement. The proposed method looks promising and should be given appropriate attention by the NRC Staff. The Committee will review this proposal, along with other proposals, on a generic basis.

The Applicant is still engaged in preparation and submittal of emergency plans to the surrounding communities. When all the final plans are available, they will be reviewed by the Federal Emergency Management Agency. A test exercise is planned to evaluate the plans' effectiveness. Some questions exist concerning the ability of certain systems to function after a major seismic event. These include emergency alarm features to alert the public to an accident in the plant, meteorological and field radiation monitoring, communications, and emergency evacuation.

The ACRS has previously recommended that probabilistic safety analyses be performed for all plants in operation or under construction. The Committee believes that this recommendation is applicable to SONGS Units 2 and 3, but that such studies need not be performed prior to licensing of the plant.

The plants are still being reviewed for conformance with NUREG-0737. The resolution of four items remains open. The Committee believes these items should be resolved in a manner acceptable to the NRC Staff. The Committee wishes to be kept informed.

The Committee recommends that SONGS Units 2 and 3 employ a seismic scram such as is installed at Diablo Canyon, set to actuate at 50% to 60% of the safe shutdown earthquake acceleration.

The ACRS believes that, if due consideration is given to the recommendations above, and subject to satisfactory completion of construction and preoperational testing, there is reasonable assurance that San Onofre Nuclear Generating Station, Units 2 and 3 can each be operated at power levels up to 3410 MWt without undue risk to the health and safety of the public.

Sincerely,

J. Carson Mark
Chairman

References:

1. Southern California Edison Company, et al, "San Onfore Nuclear Generating Station, Units 2 and 3 Final Safety Analysis Report," Vols. 1-23, with Amendments 1 through 22.
2. U. S. Nuclear Regulatory Commission, "Safety Evaluation Report Related to the Operation of San Onofre Nuclear Generating Station, Units 2 and 3, Docket Nos. 50-361 and 50-362," USNRC Report NUREG-0712, February, 1981.
3. U. S. Nuclear Regulatory Commission, "Supplement No. 1 to the Safety Evaluation Report Related to the Operation of San Onofre Nuclear Generating Station, Units 2 and 3, Docket Nos. 50-361 and 50-362," USNRC Report NUREG-0712, February, 1981.