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

March 16, 1977

Honorable Marcus A. Rowden
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: REPORT ON PARTIAL REVIEW OF THE SITE FOR THE SUNDESERT NUCLEAR POWER PLANT, UNITS 1 AND 2

Dear Mr. Rowden:

At its 203rd meeting, March 10-12, 1977, the Advisory Committee on Reactor Safeguards completed a partial review of the suitability of a site on which the San Diego Gas and Electric Company (Applicant) proposes to construct the Sundesert Nuclear Power Plant, Units 1 and 2. The site was visited on February 18, 1977, and a Subcommittee meeting was held in Blythe, California, on the same day. During its review of the Sundesert site, the Committee had the benefit of discussions with representatives of the Applicant and its consultants, Fugro, Inc., and Stone and Webster Engineering Corporation, and with the staffs of the Nuclear Regulatory Commission and the United States Geological Survey. The Committee also had the benefit of the documents listed.

The Sundesert site is located in Riverside County, California, about 16 miles southwest of Blythe, California, 2.5 miles west of Palo Verde, California, and about 6 miles from the Colorado River (the California-Arizona boundary). The minimum exclusion distance is 3200 feet; the low population zone (LPZ) radius is 3 miles. The nearest population center is Yuma, Arizona, which is located approximately 50 miles south-southeast of the site and had a 1970 population of 29,007. The 1970 population for the LPZ was reported to be 16; the population actually located within 50 miles was reported as 27,867. Population projections through the year 2020 do not indicate any population centers within 50 miles of the site other than Yuma.

The site is located in an arid region on the mesa adjacent to the Colorado River flood plain. The maximum calculated flood, which is based on the assumption that Hoover Dam fails, is expected to produce water levels no higher than 63 feet below the plant grade. Surface runoff from local intense rain storms will be controlled by diversion of water to dry washes north and south of the plant.

Plant cooling water will be supplied from the Palo Verde Irrigation District at the rate of 17,000 acre-ft. per year per reactor. Contracts to obtain the water have been signed with the Metropolitan Water District of Southern California for Unit No. 1, and water from farm land owned by the Applicant will be diverted for use in Unit No. 2. Blowdown from the plant's cooling towers will go to evaporation ponds.

The Applicant, the NRC Staff, and the USGS have agreed that horizontal ground accelerations of .35g and .175g at the site are appropriate design values for the safe shutdown earthquake (SSE) and the operating basis earthquake, respectively. The vertical accelerations are taken to be 2/3 of the horizontal. The SSE value was based on a postulated 8.5 magnitude (Richter) earthquake on the Sand Hills Fault, a branch of the San Andreas, at a distance of 35 miles. The SSE value also bounds random events, of up to magnitude 5:0, that were postulated at a distance of 5 miles from the site.

The NRC Staff has underway a program of review and reevaluation of several generic matters related to soil-structure interaction and the appropriate response spectrum for use at foundation levels of nuclear power plants. Completion of this reevaluation may result in some change in the development of the appropriate design response. The Committee believes this matter can be resolved prior to completion of the review of a construction permit for use at this site.

Nearby industrial, transportation, and military facilities were evaluated to determine their impacts upon the site. The only potential hazard to the site results from aircraft flights in the area. The Applicant has submitted analyses which conclude that the risk of aircraft impact from present traffic is acceptably low. In addition, by agreement between the NRC and Department of Defense, a directive exists requiring that military training fights be moved further from the site prior to reactor operation.

The NRC Staff has yet to review the ultimate heat sink. In addition, the NRC Staff has identified several items which will require verification during the detailed review of the Preliminary Safety Analysis Report. These items, based upon experience with other plant designs, do not preclude the use of the Sundesert site. The NRC Staff, subject to the Applicant establishing the requirements for the ultimate heat sink, has concluded that the Sundesert site is acceptable under the guidelines of 10 CFR, Part 100 for the construction and operation of a nuclear power plant of the type and size proposed.

The Committee, recognizing that the scope of this review was limited to several site related items, and that complete review of the PSAR will be finished prior to issuance of a construction permit, agrees that the site is acceptable under the guidelines of 10 CFR, Part 100.

Sincerely yours,

M. Bender
Chairman

REFERENCES:

1. San Diego Gas and Electric Company: "Sundesert Nuclear Power Plant, Early Site Review Report" (April 1975) with Amendments 1 through 12.
2. U. S. Nuclear Regulatory Commission: "Early Site Review Report By the Office of Nuclear Reactor Regulation, In the Matter of San Diego Gas and Electric Company Sundesert Site, Project No. 558," NUREG-0171, February 10, 1977.