

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

September 19, 1975

Honorable William A. Anders  
Chairman  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Mr. Anders:

Subject: REPORT ON SOUTH TEXAS PROJECT UNITS 1 AND 2

At its 185th meeting, September 11-13, 1975, the Advisory Committee on Reactor Safeguards reviewed the application of Houston Lighting and Power Company, the City Public Service of San Antonio, the Central Power and Light Company and the City of Austin (Applicants) for a permit to construct the South Texas Project Units 1 and 2. The site was visited on August 26, 1975, and the project was considered at a Subcommittee meeting at Bay City, Texas on August 27, 1975. During its review, the Committee had the benefit of discussions with representatives and consultants of the Applicants, Westinghouse Electric Corporation, Brown & Root, Incorporated, and the NRC Staff. The Committee also had the benefit of the documents listed below.

The Plant will be located on the Colorado River in Matagorda County, Texas, approximately 89 miles southwest of Houston and 12 miles south-southwest of Bay City, the designated population center (1970 population, 11,733; projected 2020 population, 24,000). The exclusion area has a minimum boundary distance of 1430 meters. The radius of the low population zone (present population, 55) is three miles. Major land use in the area of the plant site is for the production of rice and cattle.

The South Texas Project will be the first plant to reference the RESAR-41 Westinghouse Standard Design Nuclear Steam Supply System (NSSS). The South Texas Project will be in compliance with the RESAR-41 requirements. The Committee reported on RESAR-41 in its letter of September 18, 1975. Each reactor unit will utilize a four-loop pressurized water nuclear steam supply system having a core power level of 3800 MW(t).

Groundwater at the site area consists of a shallow, low quality aquifer occurring above depths of 90-150 feet and a high quality aquifer commencing at depths in the vicinity of 300 feet. Groundwater usage is almost totally from the deep aquifer. Based upon observations at other areas of similar soil structure, such as the Houston area, continual pumping of ground

water from the high quality aquifer is expected to cause subsidence in the vicinity of the plant site. The Applicant has developed design criteria assuming long term settlements, and has committed to the NRC Staff to monitor subsidence at the site over the life of the plant. The Committee believes that the planned actions provide an adequate basis for the safety of the plant structures.

The ultimate heat sink for the plant will be an artificial pond eight feet deep covering over 40 acres. It will be capable of providing the cooling water required for shutdown and maintenance of both reactors in shutdown condition for a minimum of 30 days.

The Committee has reviewed the plans of the Applicant and the NSSS designer to complete the identification and documentation of interface information required by the balance of plant contractor to meet the safety design requirements of the NSSS designer. The Committee believes that this program, when completed in a manner satisfactory to the NRC Staff, will provide an adequate design basis for the balance of plant.

The NRC Staff has identified a number of outstanding issues specific to this application as well as to RESAR-41, some of which will require resolution before the issuance of a construction permit. The Committee recommends that these matters be resolved in a manner satisfactory to the Staff. The Committee wishes to be kept informed on the resolution of the following items:

1. The emergency core cooling system evaluation,
2. Diesel engine building design and location of the storage tanks for the diesel fuel.

The Committee recommends that the NRC Staff and the Applicant review the design features that are intended to prevent the occurrence of damaging fires and to minimize the consequences to safety-related equipment should a fire occur. This matter should be resolved to the satisfaction of the NRC Staff. The Committee wishes to be kept informed.

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The NRC Staff is currently reassessing the parameters and mathematical models for calculating releases of radioactive materials in effluents from this plant. Although these calculations include the consideration of additional airborne releases such as carbon-14 and particulates, the Staff does not anticipate that the modifications will result in any substantial increase in the annual population doses previously estimated. The Staff has offered the Applicant the option of including in the South Texas Plant waste management systems meeting the requirements of the earlier proposed Appendix I, 10 CFR 50, or the revised guidance as outlined in the Commission's issuance of April 30, 1975. The revised guidance includes the requirement that cost-benefit analyses be taken into consideration in the determination of waste management needs. The Committee wishes to be kept informed on this matter.

Generic problems relating to large water reactors are discussed in the Committee's report dated March 12, 1975. These problems should be dealt with appropriately by the NRC Staff and the Applicant.

The Committee believes that the above items can be resolved during construction and that if due consideration is given to these items, the South Texas Project Units 1 and 2 can be constructed with reasonable assurance that they can be operated without undue risk to the health and safety of the public.

Sincerely yours,



W. Kerr  
Chairman

References attached.