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

April 12, 1978

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

SUBJECT: REPORT ON MCGUIRE NUCLEAR STATION, UNITS 1 AND 2

Dear Dr. Hendrie:

During its 216th meeting, April 6 and 7, 1978, the Advisory Committee on Reactor Safeguards completed its review of the application of the Duke Power Company (the Applicant) for a permit to operate the McGuire Nuclear Station, Units 1 and 2. The application was reviewed at a Subcommittee meeting in Charlotte, North Carolina on March 29-30, 1978, and tours of the facility were made on May 17, 1976* and March 28, 1978. During its review, the Committee had the benefit of discussions with representatives and consultants of the Nuclear Regulatory Commission (NRC) Staff, Westinghouse Electric Corporation, and the Applicant. The Committee also had the benefit of the documents listed. The Committee reported on the application for a construction permit for the McGuire Nuclear Station on October 9, 1971.

The McGuire Nuclear Station is located on the southern shore of Lake Norman in Mecklenburg County, North Carolina, about 17 miles north-northwest of Charlotte, North Carolina. Each unit will utilize a four loop pressurized water reactor nuclear steam supply system having an initial power level of 3411 MWt. Each unit employs an ice condenser system enclosed within a free-standing steel containment vessel which is surrounded by a reinforced concrete shield building. The ice condenser system design is similar to that used for the previously reviewed Donald C. Cook Nuclear Plant, but the Applicant has modified the ice condenser system as a result of operating experience gained in the Donald C. Cook Nuclear Plant. The Applicant and the NRC Staff should make plans to monitor the performance of the ice condenser containments at the McGuire Nuclear Station (Generic Item IIA-1 in ACRS Report, "Status of Generic Items Relating to Light-Water Reactors: Report No. 6," dated November 15, 1977).

Date corrected from that which was originally sent

The McGuire Nuclear Station will utilize 17x17 fuel assemblies. A surveillance program has been developed by the NRC Staff to follow the behavior of these assemblies, and data are being obtained from several plants now in operation which use them. Experience to date has been satisfactory. The Committee wishes to be kept informed of the results of the various 17x17 fuel assembly inspections and test programs now underway (Generic Item IIB-2 in ACRS Report, "Status of Generic Items Relating to Light-Water Reactors: Report No. 6," dated November 15, 1977).

The Emergency Core Cooling Systems (ECCS) for the McGuire Nuclear Station incorporate the Upper Head Injection (UHI) system. The NRC Staff has completed its review of the Westinghouse Electric Corporation ECCS evaluation model for plants equipped with UHI, and the Committee concurs in the Staff's conclusions. The application of the approved model to McGuire should be made in accordance with the Staff's requirements.

The NRC Staff has identified a number of outstanding issues that will require resolution before the issuance of an operating license. These issues should be resolved in a manner satisfactory to the NRC Staff.

Various generic problems are discussed in the Committee's report, "Status of Generic Items Relating to Light-Water Reactors: Report No. 6," dated November 15, 1977. Those problems relevant to the McGuire Nuclear Station should be dealt with by the NRC Staff and the Applicant as solutions are found. The relevant items are: II-2, 3, 4, 5b, 6, 7; IIA-2, 3, 4; IIC-1, 3a, 3b, 5, 6; and IID-2.

The Advisory Committee on Reactor Safeguards believes that, if due consideration is given to the items mentioned above, and subject to satisfactory completion of construction and preoperational testing, there is reasonable assurance that the McGuire Nuclear Station, Units 1 and 2 can be operated at power levels up to 3411 MWt without undue risk to the health and safety of the public.

Sincerely yours,

Stephen Lawroski

Stephen Lawroski
Chairman

REFERENCES:

1. Duke Power Company, "McGuire Nuclear Station, Units 1 and 2 Final Safety Analysis Report," with Amendments 1-48.
2. U.S. Nuclear Regulatory Commission, "Safety Evaluation Report Related to the Operation of McGuire Nuclear Station, Units 1 and 2," USNRC Report NUREG-0422, March, 1978.
3. U.S. Nuclear Regulatory Commission, "Safety Evaluation Report on Westinghouse Electric Company ECCS Evaluation Model for Plants Equipped with Upper Head Injection," April, 1978.
4. Letter from J. L. Riley, Carolina Environmental Study Group (CESG), to the Advisory Committee on Reactor Safeguards, concerning reactor pressure vessel head bolts, dated March 6, 1977.
5. Letter from W. L. Porter, Duke Power Company, to J. L. Riley, CESG, concerning reactor pressure vessel head bolt test data, dated October 4, 1972.