ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

April 17, 1969

Honorable Glenn T. Seaborg
Chairman
U. S. Atomic Energy Commission
Washington, D. C. 20545

Subject: REPORT ON NINE MILE POINT NUCLEAR STATION

Dear Dr. Seaborg:

During its 108th meeting, April 10-12, 1969, the Advisory Committee on Reactor Safeguards completed its review of the application by the Niagara Mohawk Power Corporation for a license to operate the Nine Mile Point Nuclear Station at power levels up to 1538 MW(t). During this review, the project was considered at Subcommittee meetings held on February 27, 1969 (at the site), and on April 8, 1969. In the course of these meetings, the Committee had the benefit of discussions with representatives and consultants of Niagara Mohawk Power Corporation, General Electric Company, and the AEC Regulatory Staff. The Committee also had the benefit of the documents listed. The Committee previously discussed this project in a construction permit report dated October 15, 1964.

The Nine Mile Point Nuclear Station employs a boiling water reactor. Power level, core design, and other principal features of the nuclear steam supply system are generally similar to those for the Oyster Creek Nuclear Power Plant Unit No. 1, previously discussed in the Committee's report to you dated December 12, 1968.

As in Oyster Creek Unit No. 1, type 304 stainless steel utilized at a number of places in the reactor vessel was furnace-sensitized during fabrication. Careful examination of these parts for evidence of corrosion has been made by the applicant, and none has been found. Although the likelihood of occurrence of significant corrosion (intergranular attack) during the service life of the plant appears small, the applicant plans to install appropriate corrosion test specimens within the vessel for future examination. The Committee believes that the applicant should resolve with the AEC Regulatory Staff, prior to the start of operation, a satisfactory schedule and inspection procedure for at least the initial portion of this corrosion surveillance program.

The Committee wishes to emphasize the importance of periodic inspection of the high pressure coolant system in this and other reactors. The in-service inspection requirements for this reactor as described, and to be stated in the Technical Specifications, appear adequate for initial operation. The Committee agrees with the applicant's intention to review his inspection program after about five years of operation. Because of the difficulties inherent in direct inspection of the bulk of the welds in the reactor pressure vessel after the reactor is in service, it is strongly recommended that alternative means for assuring continued pressure vessel integrity be studied and implemented to the degree practical. In addition, the applicant should develop more specific plans for in-service inspection of the main steam lines beyond the second isolation valve.

The applicant plans to study supplemental and potentially more sensitive methods of primary system leak detection and to implement methods which provide significant improvements in measurement of leak rate, in the time needed to measure leak rate, or in distinguishing the nature of the leak. The applicant should report to the Regulatory Staff his progress in this area within a year after start of power operation.

Studies are continuing on the possible effects of radiolysis of water in the unlikely event of a loss-of-coolant accident. These studies should be evaluated by the Regulatory Staff and appropriate measures taken as deemed necessary. Such measures should make allowance for effects of hydrogen generated by metal-water reactions if the effectiveness of the emergency core cooling system should be less than that predicted by the applicant.

The applicant has stated that he plans to study possible means of instrumenting and monitoring for vibration or for the presence of loose parts in the reactor pressure vessel as well as in other portions of the primary system and, by the time of the first refueling outage, to implement such means as are found practical and appropriate.

The safety review and audit function proposed by the applicant appears to be satisfactory. However, the Committee recommends that membership of the Safety Review and Audit Board include one or more experts from outside the applicant's organization, at least for the first few years of operation, to aid in effecting sufficiently independent review.

The applicant indicates that instrumentation which senses radioactivity from the steam system can be used to provide early signs of gross failure of fuel elements. As operating experience is gained, he intends to improve the utilization of this type of instrumentation for this purpose. The Committee strongly endorses this effort.

The Advisory Committee on Reactor Safeguards believes that, if due regard is given to the items mentioned above, the Nine Mile Point Nuclear Station can be operated at power levels up to 1538 MW(t) without undue risk to the health and safety of the public.

Sincerely yours,

/s/ Joseph M. Hendrie

Joseph M. Hendrie
Acting Chairman

References - Nine Mile Point Nuclear Station

1. Volumes I - IV, Final Safety Analysis Report.

2. First - Seventh Supplement to Final Safety Analysis Report.

3. Amendments 2 - 13, to Application for Licenses.

4. Final Safety Analysis Report - Nine Mile Point Nuclear Station - Technical Specifications (Revised), Draft - dated April 1969.