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

July 17, 1973

Honorable Dixy Lee Ray
Chairman
U. S. Atomic Energy Commission
Washington, D. C. 20545

Subject: REPORT ON NINE MILE POINT NUCLEAR STATION UNIT 2

Dear Dr. Ray:

At its 159th meeting, July 12-14, 1973, the Advisory Committee on Reactor Safeguards completed its review of the application by the Niagara Mohawk Power Corporation for a permit to construct Unit 2 of its Nine Mile Point Nuclear Station. A Subcommittee made a tour of the site of the proposed unit on June 15, 1973. The project was considered during a Subcommittee meeting in Washington, D. C., on June 26, 1973. During its review, the Committee had the benefit of discussions with representatives and consultants of the Niagara Mohawk Power Corporation, the General Electric Company, the Stone & Webster Engineering Corporation, and the AEC Regulatory Staff. The Committee also had the benefit of the documents listed.

Nine Mile Point Unit 2 will be located on the south shore of Lake Ontario in Oswego County, New York, about seven miles northeast of the city of Oswego. The reactor will be approximately 900 feet east of the Unit 1 reactor, which is in operation, and about 2300 feet west of the James A. FitzPatrick Nuclear Power Plant which is scheduled to start operation in the near future. The Nine Mile Point site consists of about 900 acres and is contiguous with the 700 acre FitzPatrick site. The minimum exclusion distance for Unit 2 is approximately 5,100 feet; the low population zone extends out to 3.8 miles. The applicant stated that Unit 2 will not share any safety-related facilities with either of the existing units.

Unit 2 will utilize a General Electric boiling water reactor of the 1969 product line (BWR/5) design, to be operated at power levels up to 3323 MWt (1086 MWe). Design of the nuclear steam supply system is similar to that of the Hanford No. 2 Nuclear Power Plant and the La Salle County Station units, previously approved for construction. An over-under type of pressure suppression system, with reinforced concrete primary containment, is used. The design, leak testing capability, and continued integrity of the seal for the peripheral joint between the drywell floor and wall is of particular importance. Excessive bypass leakage could interfere with the effectiveness of the pressure suppression function. The final design should be reviewed in detail by the Regulatory Staff.

It is anticipated by the applicant that, as a result of postulated storm conditions, the water level in Lake Ontario could rise to a point where flooding might be a problem on portions of the reactor site. To protect the site, the applicant proposes to expand the existing dike along the lake shore and to modify the drainage ditch behind it. Calculations by the Regulatory Staff and the applicant presently differ by three feet in the estimated maximum lake surge level under storm conditions. Studies are continuing in order to resolve this difference. The applicant has agreed that the final design and construction of the dike and drainage ditch will be accomplished in a manner acceptable to the Regulatory Staff.

The applicant proposes to install a water seal system, designed as an engineered safety feature, to minimize leakage through the main steam line isolation valves following a postulated loss-of-coolant accident. The Committee favors incorporation of a seal system for this purpose and recommends that the Regulatory Staff review carefully the final design to assure its adequacy.

The Committee recommends that further studies be made of methods to enhance the reliability of isolation of low pressure systems, such as the residual heat removal system, from the primary system while the latter is pressurized, and that such methods as are practical be implemented.

Other problems related to large water-cooled and moderated reactors have been identified by the Regulatory Staff and the ACRS and cited in previous ACRS reports. The Committee believes that resolution of these items should apply equally to Nine Mile Point Nuclear Station Unit 2.

As indicated in its report on ECCS Interim Acceptance Criteria of January 7, 1972, the Committee believes that for plants for which construction permits are requested thereafter, design changes to improve ECCS capability should be sought and, to the extent practical, employed, irrespective of whether the plant design without such changes appears to meet the provisions of the Interim Acceptance Criteria. The Committee recognizes that there may be practical difficulties in fully implementing this recommendation for the Nine Mile Point Unit 2 plant, but believes the applicant should make a serious study of means to satisfy the desired objective. The Committee wishes to be kept informed concerning the applicant's efforts to improve emergency core cooling capability during the construction phase of this project.

The ACRS believes that the above items can be resolved during construction and that, if due consideration is given to these items, Nine Mile Point Unit 2 can be constructed with reasonable assurance that it can be operated without undue risk to the health and safety of the public.

Sincerely yours,

H. G. Mangelsdorf

H. G. Mangelsdorf
Chairman

References

1. Preliminary Safety Analysis Report for the Nine Mile Point Nuclear Station, Unit 2 - Volumes I through VIII.

2. Amendments 1 through 9 and 11 through 12.

3. Niagara Mohawk Power Corporation letter dated December 13, 1972 regarding stack height and turbine building ventilation.

4. Niagara Mohawk Power Corporation letter dated January 3, 1973 regarding fuel densification.

5. Niagara Mohawk Power Corporation letter dated May 21, 1973 submitting plant design modifications and supplemental information to the PSAR.

6. Directorate of Licensing Safety Evaluation Report dated June 15, 1973.