



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555

August 12, 1992

Docket No. 50-220

Mr. B. Ralph Sylvia
Executive Vice President, Nuclear
Niagara Mohawk Power Corporation
301 Plainfield Road
Syracuse, New York 13212

Dear Mr. Sylvia:

SUBJECT: NINE MILE POINT NUCLEAR STATION UNIT NO. 1 RESPONSE TO GENERIC LETTER 92-01, REVISION 1, "REACTOR VESSEL STRUCTURAL INTEGRITY, 10 CFR 50.54(f)," (TAC NO. M83486)

The NRC staff has performed a preliminary review of Niagara Mohawk Power Corporation's (NMPC) July 2, 1992, response to Generic Letter 92-01, Revision 1, "Reactor Vessel Structural Integrity, 10 CFR 50.54(f)," for Nine Mile Point Unit No. 1 (NMP-1). Your response stated that the Charpy upper shelf energy (USE) of two beltline plates of the reactor vessel is predicted to be below the 50 ft lb screening criteria in Appendix G, 10 CFR Part 50, at the present time when the Charpy USE is calculated using the guidance of Branch Technical Position - MTEB 5-2, "Fracture Toughness Requirements," in Standard Review Plan 5.3.2 (65 percent correction factor for orientation) and Regulatory Guide (RG) 1.99, Revision 2, "Radiation Embrittlement of Reactor Vessel Materials." Your response also stated that an alternative calculation method was used to predict that both plates' Charpy USE will not fall below 50 ft lb prior to end of the NMP-1 operating license. The alternative method used an 80 percent correction factor for orientation and a smaller amount of correction for irradiation than the amount recommended in RG 1.99, Revision 2. The orientation correction factor is based on tests from one plate in the NMP-1 reactor vessel beltline and from material similar to those in the NMP-1 reactor vessel beltline. The irradiation correction factor is based on irradiation data from a plate in the NMP-1 reactor vessel with less copper than the limiting NMP-1 plate and is only for one neutron fluence. Since the correction factor is based on a very limited amount of data, the alternative calculational method is not fully acceptable.

In order to demonstrate that plates with Charpy USE less than 50 ft lb have margins of safety against fracture equivalent to those required by Appendix G of the ASME Code, the NRC staff recommends that NMPC perform an elastic-plastic fracture mechanics analysis using the criteria in the latest revision of Appendix X to Section XI of the ASME Code and the material properties from NUREG/CR-5729, "Multivariable Modeling of Pressure Vessel and Piping J-R Data." The NRC staff recommends that a lower 95 percent confidence value for J_d be used to represent conservative material properties for Levels A, B and C Service Loadings and a mean value for J_d be used to represent the best estimate properties for Level D Service Loadings. The service conditions to be evaluated are those in the NMP-1 design specification. However, if the

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Mr. B. Ralph Sylvia

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design specification does not include loadings for Level C or D Service Conditions, NMPC should evaluate these service conditions using Level C or D Service Loadings from more recently licensed BWR plants.

As discussed in an August 6, 1992, telephone conference call with members of your staff (Mr. Nick Spagnoletti, et al.) and members of the NRC staff and as further discussed in an August 10, 1992, meeting held with members of your staff in the NRC office in Rockville, Maryland, we request that NMPC submit the results of the requested supplemental analysis for our review within 60 days of receipt of this letter.

This requirement affects one respondent and, therefore, is not subject to the Office of Management and Budget review under P.L. 96-511.

Sincerely,

Donald S. Brinkman

Donald S. Brinkman, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

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Sincerely,

Original Signed By:

Donald S. Brinkman, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

cc: See next page

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*See previous concurrence

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Niagara Mohawk Power Corporation

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