50-410

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 15, 1998

Mr. John H. Mueller
Chief Nuclear Officer
Niagara Mohawk Power Corporation
Nine Mile Point Nuclear Station
Operations Building, Second Floor
Lycoming, NY 13093

SUBJECT: CORE SHROUD INSPECTION AND FLAW EVALUATION FOR OPERATION AFTER REFUELING OUTAGE 6, NINE MILE POINT NUCLEAR STATION, UNIT NO. 2 (TAC NO. MA2286)

Dear Mr. Mueller:

By letter dated July 9, 1998, as supplemented September 21, 1998, Niagara Mohawk Power Corporation (NMPC) submitted results of the ultrasonic inspection of core shroud welds during the 1998 refueling outage (RFO6) at Nine Mile Point Nuclear Station, Unit 2 (NMP2), and provided a flaw evaluation for the continued operation of NMP2 for one operating cycle.

Following the detection of significant cracking (i.e., in excess of 10 percent of the inspected length) in horizontal weld H4, NMPC inspected accessible areas of all horizontal welds in accordance with the Boiling Water Reactor Vessel and Internals Project's (BWRVIP's) "BWR Core Shroud Inspection and Flaw Evaluation Guidelines" (BWRVIP-01), Revision 2. These additional inspections revealed significant cracking in welds H5 and H7; minor cracking in welds H1, H2, H3, and H8; and no cracking in weld H6. NMPC also inspected accessible areas of vertical welds V12, V13, V14, V15, V16, and V17 and found no evidence of cracking. NMPC's letter of July 9, 1998, included a report by General Electric Nuclear Energy, GENE-B13-01920-63, Revision 2, "The Evaluation Of Nine Mile Point Unit 2 Shroud Cracking For At Least One Fuel Cycle Of Operation Following RFO6," dated June 1998, which describes the observed cracking in the horizontal shroud welds and presents the results of a structural margin evaluation.

The NRC staff has completed its review of your submittals. In the enclosed safety evaluation, the NRC staff concludes that the flaw evaluation meets the rules of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, "Rules for In-Service Inspection of Nuclear Power Plant Components." Since the predicted final flaw depth at the end of the operating cycle has a calculated safety factor that exceeds the safety factor required by the ASME Code, the NRC staff concludes that continued operation, without repair or intermediate inspection of the NMP2 core shroud, is acceptable for at least the operating cycle that follows RFO6.

The NRC staff acknowledges that you believe the current analysis, which is based upon the bounding crack growth rate of $5 \times 10^{-5}$ inch/hour specified in BWRVIP-01, is conservative and that you plan to submit a revised analysis in the future that may justify operations for two cycles. The revised analysis will be based upon the NRC staff's recent approval of BWRVIP-14, "Evaluation of Crack Growth in BWR Stainless Steel Reactor Pressure Vessel Internals." The NRC staff also acknowledges that NMPC will submit its NMP2 core shroud reinspection plan to the NRC staff at least 3 months before the RFO7 reinspection is performed, and will provide the results of the RFO7 reinspection to the NRC staff within 30 days of its completion.



MAY

This completes our review under TAC No. MA2286. If you have questions regarding this letter or the enclosure, contact me by phone at (301) 415-3049 or by electronic mail at dsh@nrc.gov.

Sincerely,

Darl S. Hood

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

Docket No. 50-410

Enclosure: Safety Evaluation

cc w/encl: See next page

This completes our review under TAC No. MA2286. If you have questions regarding this letter or the enclosure, contact me by phone at (301) 492-3049 or by electronic mail at dsh@nrc.gov.

Sincerely,

Original signed by:

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

Docket No. 50-410

Enclosure: Safety Evaluation

cc w/encl: See next page

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