

March 3, 2000

Mr. John H. Mueller
Chief Nuclear Officer
Niagara Mohawk Power Corporation
Nine Mile Point Nuclear Station
Operations Building, Second Floor
P.O. Box 63
Lycoming, NY 13093

SUBJECT: NINE MILE POINT NUCLEAR STATION, UNIT NO. 2 - CORRECTION OF
SAFETY EVALUATION RELATED TO AMENDMENT NO. 90 REGARDING
SURVEILLANCE CAPSULE WITHDRAWAL SCHEDULE (TAC NO. MA7768)

Dear Mr. Mueller:

By letter dated February 15, 2000, I transmitted the subject amendment to you. Subsequently, your staff Messrs. Steve Leonard and Kenneth Korcz identified an error in the related safety evaluation where reference was made to the American Society for Testing and Materials (ASTM) Standard Practice E 185, "Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels." Specifically, the edition applicable to Nine Mile Point, Unit 2, should be dated 1973, not 1970. We consulted the Updated Safety Analysis Report, Section 5.3, and confirmed that the date should indeed be 1973.

Enclosed please find the entire safety evaluation, reissued with the corrected information. The staff's conclusion reached in the uncorrected safety evaluation, and the effectiveness of Amendment No. 90, were not affected by the errors. We apologize for any inconvenience the errors had caused you.

Sincerely,

/RA/

Peter S. Tam, Senior Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-410

Enclosure: As stated

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 90 TO FACILITY OPERATING LICENSE NO. NPF-69
NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT NUCLEAR STATION, UNIT NO. 2
DOCKET NO. 50-410

1.0 INTRODUCTION

By letter dated December 28, 1999, Niagara Mohawk Power Corporation (NMPC), the licensee for the Nine Mile Point Nuclear Station, Unit 2 (NMP2), requested that the NRC review and approve its proposed Technical Specification (TS) change to modify its reactor pressure vessel (RPV) surveillance capsule withdrawal schedule. The proposed change would change the date of withdrawal of the first surveillance capsule in TS Table 4.4.6.1.3-1 from 10 effective full-power years (EFPY) of operation to 8 EFPY.

2.0 BACKGROUND

Nuclear power plant licensees are required by Title 10 of the Code of Federal Regulations, Part 50, Appendix H (10 CFR Part 50, Appendix H) to implement RPV surveillance programs to "monitor changes in the fracture toughness properties of ferritic materials in the reactor vessel beltline region ... which result from exposure of these materials to neutron irradiation and the thermal environment." Regarding RPV surveillance program design and specimen testing, 10 CFR Part 50, Appendix H incorporates by reference the editions of the American Society for Testing and Materials (ASTM) Standard Practice E 185, "Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels," through the 1982 edition. Under 10 CFR Part 50, Appendix H, the licensee's RPV surveillance program design and withdrawal schedule is required to meet the requirements of the edition of ASTM E 185 that is current on the issue date of the American Society of Mechanical Engineers Pressure and Vessel Code (ASME Code) to which the RPV was specified, although later editions may be used, up to and including the 1982 edition. The test procedures and reporting requirements must however meet the requirements of the 1982 edition of ASTM E 185, to the extent practical for the configuration of the specimens in the capsules.

3.0 EVALUATION

The NMP2 RPV was specified to the 1971 Edition of the ASME Code through the 1972 Winter addenda. As such, the edition of ASTM E 185 to which the NMP2 RPV surveillance program was designed was the 1973 edition (ASTM E 185-73). Paragraph 4.6 of ASTM E 185-73

Enclosure

addresses the withdrawal schedule as follows, “[i]t is recommended that sets of specimens be withdrawn at three or more separate times. One of the data points obtained shall correspond to the neutron exposure of the reactor vessel at no greater than 30 percent of its design life. One other data point obtained shall correspond to the neutron exposure of the component near the end of its design life.”

In its December 28, 1999, submittal the licensee stated that its reason for requesting this TS change was to obtain the neutron dosimetry data from the capsule and validate the results of the NMP2 neutron transport calculations. These transport calculations were being performed for the licensee to obtain flux and fluence information at core shroud locations. This change in the TS requirements would permit the licensee to remove the surveillance capsule during the next outage, scheduled for spring 2000, at which time the plant would have been operated for approximately 8.7 EFPY.

With regard to the impact of the surveillance capsule schedule change on its ability to monitor RPV integrity, the licensee found that the change would not challenge its ability to operate the RPV safely or monitor the effects of irradiation embrittlement. The licensee stated that the NMP2 surveillance program would continue to meet the requirements of 10 CFR Part 50, Appendix H, after this change was enacted.

The NRC staff reviewed the information supplied by the licensee and the regulatory requirements stated above. The staff agrees with the licensee's conclusion that the change in the first capsule withdrawal from 10 to 8 EFPY was acceptable. The staff reached this conclusion because compliance with the ASTM E 185-73, as required for NMP2 by 10 CFR Part 50, Appendix H, only requires that the first capsule be withdrawn at an exposure level equivalent to approximately 25 percent of the vessel design life or at a predicted Charpy shift of approximately 50 °F, whichever comes first. Considering that, as stated in the licensee's submittal, the surveillance capsule fluence lags the peak RPV 1/4T fluence by a factor of 0.46, removal of the capsule at 8.7 EFPY instead of after 10 EFPY is sufficient to meet this criteria. Therefore, withdrawal of the first capsule at 8 EFPY would be in compliance with 10 CFR Part 50, Appendix H. In addition, the staff notes that the RPV pressure-temperature limits for NMP2 will continue to be based on the generic procedures (Position 1.1) of Regulatory Guide (RG) 1.99, Revision 2 (RG 1.99, Rev. 2) until at least two data points are obtained from the NMP2 surveillance program, thus no effect from this change in first capsule withdrawal date is expected. The use of RG 1.99, Rev. 2 Position 1.1 will continue to provide an appropriately conservative assessment of the RPV pressure-temperature limits.

The NRC staff has concluded that the change of the withdrawal requirement, as specified in TS Table 4.4.6.1.3-1, for the first NMP2 RPV surveillance capsule from 10 EFPY to 8 EFPY is acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New York State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (65 FR 2443). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: M. Mitchell

Date: February 15, 2000; reissued with corrections on March 3, 2000