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See Rpt.

SUBJECT: Informs of util decision to amend commitment w/respect to NUREG-0619.GE proprietary rept GE-NE-508-038-0394,Rev 1, "GERIS 2000 Ultrasonic Insp of Feedwater Nozzles" encl.GE proprietary rept withheld (ref 10CFR2.790).

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June 23, 1994
NMP1L 0829

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Gentlemen:

The purpose of this letter is to inform the NRC of Niagara Mohawk's decision to amend our commitment with respect to NUREG-0619, "BWR Feedwater Nozzle and Control Rod Drive Return Line Nozzle Cracking." Niagara Mohawk in a letter dated December 29, 1980 committed to the schedule for Ultrasonic Testing (UT), Visual Inspection, and Dye Penetrant Testing (PT) outlined in Table 2 of NUREG-0619. Specifically, Niagara Mohawk committed to perform a PT examination every six refueling outages or 90 start-up/shutdown cycles. This would require pulling one sparger to PT the feedwater nozzle from the inside of the reactor vessel during Refuel Outage 13 (scheduled for 1995). Detection of cracks based on the PT examination alone would require removal of the three remaining spargers, PT examination of all nozzles and subsequent grindout repair of all indications. The control rod drive hydraulic return line nozzle would also require a PT examination.

Section 4.3.1 of the NUREG states that "should future developments and the results of inservice UT examinations demonstrate that UT techniques can detect small nozzle thermal fatigue cracks with acceptable reliability and consistency, these techniques could then form the basis for modification of the inspection criteria." Recent advances in automated UT technology have caused Niagara Mohawk to reevaluate its commitment to PT examinations as the most effective technique for crack detection in this configuration. The automated UT techniques currently available for inspecting feedwater nozzles on BWRs can detect a flaw less than or equal to 0.25 inch in depth with reliable and consistent results. This technique can be accomplished without sparger removal, and therefore could reduce critical path time during the outage by 10 to 17 days and result in a reduction of greater than 50 person-rem of exposure. An added benefit is the ability to size a crack indication without grinding and additional PT exams. Consequently, Niagara Mohawk plans to use the GERIS-2000 system for UT inspections of nozzles during Refueling Outage 13. This system has been qualified on two full scale mockups of BWR feedwater nozzles that contained notches of various sizes and fatigue crack implants. In addition, this system was qualified at the Cooper Nuclear Station in 1991 and will be calibrated for Nine Mile Point Unit 1 prior to use during Refueling Outage 13.

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The attached "Technical Basis for Utilization of Automated UT Inspection of Feedwater Nozzle Blend Radius and Bore and Control Rod Drive Hydraulic Return Line Nozzle," and enclosures to this letter provide the technical basis for utilization of the automated UT inspection technique in place of the present PT examination requirement. A description of the General Electric UT examination technique and its application and calibration for Nine Mile Point Unit 1 is included. Also included are two fracture mechanics analyses which will be used to evaluate the acceptability of crack indications in the UT inspected nozzles should any cracks be identified.

Modifications have been made to the Feedwater System which have essentially eliminated the mechanisms which contribute to high cycle fatigue cracking. However, should a crack occur, the GERIS-2000 system's ability to reliably and consistently detect cracks of 0.25 inches in depth provides confidence that any significant cracking will be detected. Crack growth calculations show this size crack would not reach the ASME Section XI allowable flaw sizes based on actual plant cycle data. Therefore, Niagara Mohawk plans to use the automated inspection technique as described in this letter to replace the PT examination as previously committed.

Enclosure 1 was prepared by General Electric and has been identified as Proprietary Information. Enclosure 2 provides General Electric's affidavit to that effect. Therefore, in accordance with 10CFR2.790, on behalf of General Electric, it is requested that Enclosure 1 be withheld from public disclosure in accordance with Enclosure 2.

Very truly yours,

C. D. Terry
Vice President - Nuclear Engineering

CDT/MGM/lmc
Enclosures

xc: (without enclosures)
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