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

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

Subject: ***Core Shroud Reinspection Scope for Refueling Outage No. 16***

Gentlemen:

By letter dated October 20, 1999, the NRC Staff issued a letter that presented the results of the Staff's review of the Nine Mile Point Power Station, Unit 1 (NMP1) refueling outage No. 15 (RFO15) core shroud inspection results. In that letter, the Staff requested that Niagara Mohawk Power Corporation (NMPC) define the scope of the core shroud reinspection for NMP1 during refueling outage No. 16 (RFO16). As delineated in that letter, NMPC committed to inform the staff of the scope of the reinspection at least three (3) months before the start of RFO16.

Attachment 1 to this letter contains a description of the scope of core shroud reinspection for RFO16. RFO16 is scheduled to begin in March 2001.

Very truly yours,

Richard B. Abbott
Vice President Nuclear Engineering

RBA/TRB/kap
Attachment

xc: Mr. H. J. Miller, NRC Region Administrator, Region 1
Ms. M. K. Gamberoni, Section Chief PD-I, Section 1, NRR
Mr. G. K. Hunegs, NRC Senior Resident Inspector
Mr. P. S. Tam, Senior Project Manager, NRR
Records Management

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Attachment 1

ATTACHMENT 1
NINE MILE POINT NUCLEAR STATION UNIT 1 (NMP1)
CORE SHROUD REINSPECTION SCOPE FOR REFUELING OUTAGE NO. 16

The following core shroud reinspection plan meets the inspection guidelines set forth in BWRVIP-07, "BWR Vessel and Internals Project Guidelines for Reinspection of BWR Core Shrouds".

Shroud Horizontal Welds

Tie rod assemblies have structurally replaced the load carrying capability of horizontal welds H1 through H7. Also, current structural evaluations of the vertical and ring segment welds do not credit integrity of the intersecting horizontal welds. Therefore, in accordance with BWRVIP-07, the horizontal welds do not need reinspection.

Shroud Vertical Welds

Extensive ultrasonic testing (UT) examinations were performed on all of the unrepaired shroud vertical welds during refueling outage No. 15 (RFO15) and no structurally significant indications were identified. Conservative evaluations of the RFO15 UT data were made using NRC approved analysis methods. These evaluations have established the integrity of the vertical welds for at least two operating cycles. Therefore, shroud vertical weld reinspections are not necessary during refueling outage No. 16 (RFO16).

As described in detail in NMP1's previous submittal in letter NMP1L 1449 dated July 9, 1999, weld V4 indications believed to be manufacturing induced and not characteristic of intergrannular stress corrosion cracking (IGSCC) were detected by UT. A supplemental enhanced visual techniques (EVT-1) inspection from the inner diameter (ID) surface detected no indications, which confirmed that the indications were not ID connected. The conclusion reached based on the report data was that the V4 weld does not have an IGSCC related crack that requires additional disposition. During RFO16, NMP1 intends to reinspect the accessible regions of the ID of V4 by the EVT-1 technique to reconfirm that the UT indication is not ID surface connected. If no surface connected indications are detected, then the End of Interval (EOI) for this weld can be established as the standard BWRVIP-07 recommended EOI for a weld that has been inspected with over 50% coverage with no IGSCC detected (i.e., 6 years). It is noted that even if it were conservatively assumed that the UT indication was IGSCC, no inspection would be required for RFO16 based on using flaw evaluation methods consistent with previous NRC staff reviewed load limit analysis methods for this weld.

Ring Segment Welds

Consistent with guidance provided in BWRVIP-07, the shroud tie rod repair designer has determined the required minimum uncracked metal for each ring segment weld required to maintain structural integrity with the tie rod repair in place. During RFO15, sufficient volumetric UT inspection coverage of all six ring segment welds was achieved, including

refueling outage No. 14 (RFO14) supplemental EVT-1 coverage, to confirm the presence of the minimum required uncracked metal as specified by the repair designer. Since the UT and visual inspections found no relevant indications in any of the accessible ring weld area examined, a reinspection interval consistent with the BWRVIP-07 standard reinspection interval of six (6) years is justified.

Shroud Horizontal Weld Repair Assemblies (Tie Rod Assemblies)

Detailed visual inspections of all four (4) tie rod assemblies will be performed during RFO16 consistent with guidance provided in BWRVIP-07. In addition to the detailed visual inspections, the tightness of the 350° azimuth tie rod assembly will be verified by measuring the tie rod nut rotation. Four (4) core plate spacers (wedges) were installed with the tie rod assemblies. A baseline visual inspection of all four (4) core plate wedges was performed during RFO14 and RFO15 with no anomalies identified. One (1) core plate wedge will be reinspected during RFO16.

Shroud Vertical Weld Repair (V9 and V10 Clamp Assemblies)

Two (2) clamps were installed on both the vertical V9 and V10 welds during RFO15. A detailed visual inspection of all four (4) clamps will be performed during RFO16. The inspection will involve the visual inspection of the overall clamp and threaded pin-to-eccentric and locking screw-to-eccentric crimp areas to confirm no change from their condition during the RFO15 post-installation inspection.

Shroud Support Weld H8

The H8 weld was inspected in 1995 and 1997 using combined volumetric UT techniques and single sided outer diameter (OD) EVT-1 techniques. Supplemental inspections of previously identified OD indications were performed using EVT-1 in 1999 with no significant growth identified. The inspection interval required for the H8 weld based on the 1997 volumetric UT coverage and the plant specific H8 UT qualification was defined as 4 years (EOI at RFO16). This interval conservatively credits only the regions covered by volumetric examination and assumes the UT far side detection limitation results in undetected flaws that propagate at the prescribed rate of 5E-5 in/hr during the inspection interval. Based on these conservative assumptions, reinspection using volumetric methods is required for RFO16. NMPC is developing an advanced UT technique that will be capable of improved coverage of the H8 weld for deployment in RFO16. This inspection method will be qualified to standards in BWRVIP-03, "Reactor Pressure Vessel and Internals Examination Guidelines", and is being designed to achieve improved coverage of the H8 weld. If this method is not successful, the planned contingency inspection technique is the General Electric OD tracker UT methods deployed in 1995 and 1997.

Dependent on NRC approval of BWRVIP-59, "Evaluation of Crack Growth in BWR Nickel Base Austenitic Alloys in RPV Internals" and approval of BWRVIP-62, "Inspection Credit for BWR Internal Components with Hydrogen Injection and Noble

Metal Chemical Addition", NMPC would consider the associated reduced crack growth rate (CGR) applicable to the H8 weld for the purpose of defining a future H8 volumetric inspection interval. It is anticipated that an inspection interval of 6 years is justified for the H8 weld if the BWRVIP-59 CGR is applied or BWRVIP-62 inspection credit and associated reduced CGR for Nickel Base Alloys is applied to define the interval. NMP1 started IGSCC mitigation using Noble Metal Chemical Addition in May 2000 and current operation goals would satisfy the BWRVIP-62 criterion for inspection relief.

Shroud Support Weld H9

The H9 weld was inspected in 1999 using EVT-1 methods from the OD surface (top side). The inspection coverage was close to 100% of the weld circumference. No indications were identified. Based on guidance in BWRVIP-38, "BWR Shroud Support Inspection and Flaw Evaluation Guidelines", as submitted to the NRC, this inspection qualifies the weld for a 6-year interval with an associated EOI at refueling outage No. 18 (RFO18).

Based on the current open issue 3.1.2 identified in the NRC safety evaluation issued July 24, 2000 on BWRVIP-38, and recommendations in GE-Nuclear SIL 624, "Stress Corrosion Cracking in Alloy 182 Welds in Shroud Support Structure", NMPC is developing a H9 UT inspection technique. Specifically, the H8 volumetric examination tool is being developed with the capability to inspect the H9 weld volumetrically from the Pressure Vessel annulus. Qualification of the coverage for detection of both circumferential and axial indications in the H9 weld is ongoing. Deployment of this tool is planned for RFO16 for volumetric examination of the H9 weld with an emphasis on circumferential flaw detection. The tool will also be oriented for axial flaw detection and sizing on a sampling basis. Consistent with the guidance in the NRC safety evaluation issued July 24, 2000 on BWRVIP-38, NMPC is attempting to utilize innovative inspection tooling and methodologies to examine the H9 weld. Since the performance of the H9 volumetric examination is a first-of-a-kind application, tooling difficulties could prevent the completion of the examination in RFO16.