



Constellation Energy

Nine Mile Point Nuclear Station

P.O. Box 63
Lycoming, New York 13093

January 14, 2005
NMP1L 1916

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

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

Revision of the Core Shroud Support Weld H9 Inspection Plan for
Refueling Outage (RFO)-18

Gentlemen:

By letter dated August 2, 2001, Niagara Mohawk Power Corporation (NMPC), the former licensee, submitted the results of the H9 weld inspection and associated flaw evaluation and the proposed reinspection plan for the weld to the Nuclear Regulatory Commission (NRC) for review. The flaw evaluation and proposed reinspection plan were accepted by the NRC in its letter and safety evaluation (SE) dated October 31, 2001. For the H9 weld, the reinspection plan included a volumetric inspection during Refueling Outage (RFO)-17 using ultrasonic testing (UT) methods. Subsequently, in a letter dated December 13, 2002, Nine Mile Point Nuclear Station, LLC (NMPNS), requested NRC approval of an extension allowing the H9 weld reinspection to be completed during RFO-18 instead of RFO-17. The NRC staff reviewed NMPNS's extension request and, by letter and SE dated March 20, 2003, approved the extension.

The purpose of this letter is to request NRC approval of a proposed change to the H9 weld recirculation N1 nozzle locations to be UT inspected during RFO-18. Nine Mile Point Unit 1 (NMP1) has five recirculation N1 (suction) nozzles. The reinspection plan proposed by NMPC in the August 2, 2001 letter, and subsequently approved by the NRC, identified the N1 nozzles to be inspected as N1A, N1C, and N1E based on sampling of indications for inspection. However, a recent revision to the planned RFO-18 American Society of Mechanical Engineers (ASME) Section XI recirculation N1 nozzle inspections resulted in the loss of accessibility to the N1A inspection location. NMPNS is, therefore, requesting approval of the N1D inspection location as an acceptable replacement for the previously approved N1A location. Inspection of the N1D nozzle location in lieu of the N1A location represents an improvement as compared to the previously approved sampling. Accordingly, the proposed scope for the H9 weld reinspection remains

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adequate to verify that the attachment weld indications are contained in the attachment weld and the flaw evaluations are valid. Attachment 1 to this letter provides the necessary background and justification for the proposed change to the N1 nozzle inspection location. NMPNS requests NRC approval of the proposed change by March 1, 2005 to support outage planning for RFO-18.

Sincerely,



James A. Spina
Vice President Nine Mile Point

JAS/CDM/jm
Attachment

cc: Mr. S. J. Collins, NRC Regional Administrator, Region I
Mr. G. K. Hunegs, NRC Senior Resident Inspector
Mr. P. S. Tam, Senior Project Manager, NRR (2 copies)

ATTACHMENT 1

NINE MILE POINT UNIT 1 (NMP1)

ENGINEERING BASIS FOR REVISION OF THE CORE SHROUD SUPPORT WELD H9 INSPECTION PLAN FOR REFUELING OUTAGE (RFO)-18

Background

By letter dated August 2, 2001 (Reference 1), Niagara Mohawk Power Corporation (NMPC), the former licensee, submitted the results of the H9 weld inspection and associated flaw evaluation and the reinspection plan for the weld to the Nuclear Regulatory Commission (NRC) for review. For the H9 weld, the reinspection plan included a sample volumetric inspection during RFO-17 using ultrasonic testing (UT) methods. Specifically, the reinspection plan for the H9 weld committed to a UT inspection of the reactor pressure vessel (RPV) H9 weld attachment location from the vessel outside diameter (OD) at recirculation suction nozzles N1A, N1C, and N1E. NMP1 has five recirculation N1 (suction) nozzles (N1A - N1E). By letter and enclosed safety evaluation (SE) dated October 31, 2001 (Reference 2), the NRC accepted the flaw evaluation and proposed reinspection plan for the H9 weld. Subsequently, in a letter dated December 13, 2002 (Reference 3), Nine Mile Point Nuclear Station, LLC (NMPNS), requested a deferral of the RPV H9 weld OD UT inspection from RFO-17 to RFO-18. The locations to be inspected remained unchanged. The basis for this deferral was the recognized benefit in terms of radiological dose reduction that would be gained by postponing the H9 weld reinspection until after decontamination of the recirculation piping, which is planned for RFO-18. By letter dated March 20, 2003 (Reference 4), the NRC concurred with the deferral of the H9 weld reinspection from RFO-17 to RFO-18.

In the Reference 1 letter, the original H9 weld reinspection plan scope for RFO-17 identified three recirculation N1 nozzles for inspection. The NMP1 RPV OD clearances restrict the locations of the H9 weld inspection to regions near the recirculation N1 nozzles. During RFO-17, nozzles N1A, N1C, and N1E were scheduled for American Society of Mechanical Engineers (ASME) Section XI nozzle to vessel weld inspection. These three nozzle locations were expected to allow coverage of two of the four higher amplitude indications and seven of the lower amplitude indications, thus providing an adequate sampling to confirm that the H9 alloy 182 indications are confined to the weld metal. As previously discussed, the NRC concurred with the proposed reinspection plan and also concurred with the deferral of the reinspection to RFO-18 (References 3 and 4, respectively).

Proposed Change and Justification

A recent revision to the planned RFO-18 ASME Section XI recirculation N1 nozzle inspections has resulted in the loss of accessibility to the N1A inspection location. The proposed change to the reinspection location has been reviewed to verify that the inspection coverage is at least equivalent to that originally considered acceptable. The N1D and N1B nozzle locations will be accessible based on current plans for RFO-18.

As shown in Table 1, the N1D nozzle location represents an improvement in flaw indication number and length coverage when compared to the N1A location.

Although nozzle location N1B will now be accessible based on the current plans for RFO-18 ASME section XI inspections of the safe-end, an additional dose will be incurred to complete another UT from the vessel OD at the N1B nozzle. Since the proposed scope for RFO-18 is improved as compared the scope previously approved, the additional man-rem that would be incurred to perform N1B nozzle OD inspection is not considered technically justified. The proposed scope remains adequate to verify that the attachment weld indications are contained in the attachment weld and that the flaw evaluation assumptions are valid.

During RFO-17, an opportunity became available to inspect the N1E nozzle location. An inspection was, therefore, performed from the RPV OD and was qualified for detection and sizing of flaws in the vessel in both the circumferential and axial orientations. The inspection coverage achieved included the regions of the flaws described in Table 1. The inspection did not identify any new flaw indications. The inspection coverage satisfied the purpose of the inspection and the results confirmed that the H9 attachment weld flaws were confined to the weld, with no crack propagation into the RPV low alloy steel. The N1E inspection volume enveloped the region containing indications 31, 32, 33, and 34, as described in Table 1 (Table 2 of Reference 1). The N1E location is considered the best N1 nozzle inspection location since it includes indication 34, which is one of the indications that matched the BWRVIP amplitude for BWRVIP mockup indications "h" and "i," and three indications that were evaluated in Reference 1 as likely to be primarily axial oriented flaws similar to the Tsuruga cracking morphology. Note that the N1E nozzle will not be inspected during RFO-18 since it was inspected during RFO-17.

Table 1
H9 Vessel OD Coverage Estimates

Recirculation Suction Nozzle (NMP1 has 5 N1 nozzles)	Access Locations and Coverage Estimate (1.85 inches per degree)	Flaw Indication No. (Location)	Flaw Indication Length (degrees / inches)
N1A (Not accessible in RFO-18)	42° ($\cong \pm 10$ degrees)	#3 (55.65°)	1.12° / 2.07"
N1B	-114° ($\cong \pm 10$ degrees)	#9 (117.99°)	0.56° / 1.04"
N1C (Inspection planned for RFO-18)	186° ($\cong \pm 10$ degrees)	#16 (177.61°) #17 (192.03°)* #18 (196.23°) #19 (197.63°)	0.70° / 1.29" 4.06° / 7.51" 0.84° / 1.55" 4.34° / 8.02"
N1D (Inspection planned for RFO-18)	258° ($\cong \pm 10$ degrees)	#26 (248.73°) #27 (256.01°) #28 (256.71°) #29 (257.83°)	2.24° / 4.14" 0.56° / 1.04" 0.42° / 0.78" 0.98° / 1.81"
N1E (Inspection performed in RFO-17)	330° achieved ($\cong 45$ " length with N1E centerline at 20" ($\cong \pm 12^\circ$))	#31 (324.59°) #32 (328.23°) #33 (331.87°) #34 (336.49°)*	3.36° / 6.21" 0.42° / 0.78" 0.84° / 1.55" 2.52° / 4.66"

* Indications that match the BWRVIP amplitude for BWRVIP mockup indications h and i.

Conclusion

A recent revision to the planned RFO-18 ASME Section XI recirculation N1 nozzle inspections resulted in the loss of accessibility to the N1A inspection location. NMPNS is, therefore, requesting approval of the N1D inspection location as an acceptable replacement for the previously approved N1A location. As shown in Table 1, inspection of the N1D nozzle location in lieu of the N1A location represents an improvement as compared to the previously approved sampling coverage. Accordingly, the proposed scope for the H9 weld reinspection remains adequate to verify that the attachment weld indications are contained in the attachment weld and the flaw evaluations are valid, while minimizing radiological dose to plant personnel.

References

- 1) NMPC letter to NRC dated August 2, 2001 (NMP1L 1603), "Inspection Results for Core Shroud Support Welds H8 and H9"
- 2) NRC letter to NMPC dated October 31, 2001, "Nine Mile Point Nuclear Station, Unit No. 1 - Inspection Results for Core Shroud Support Welds H8 and H9 (TAC No. MB2528)"
- 3) NMPNS letter to NRC dated December 13, 2002 (NMP1L 1702), "Inspection of Core Shroud Support Weld H9 – TAC No. MB6893"
- 4) NRC letter to NMPNS dated March 20, 2003, "Nine Mile Point Nuclear Station, Unit No. 1 - Inspection of Core Shroud Support Weld H9 (TAC No. MB6893)"