



Nine Mile Point  
Nuclear Station

September 13, 2002  
NMP1L 1673

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: Reactor Recirculation System and Reactor Water Cleanup System Piping Weld Inspections***

Gentlemen:

The purpose of this letter is to notify the NRC of changes to regulatory commitments regarding the inspection requirements for certain Nine Mile Point Unit 1 (NMP1) piping welds as described below:

1. The reinspection schedule for four (4) welds in the reactor recirculation system piping. The subject welds are 32-WD-046, 32-WD-086, 32-WD-126, and 32-WD-168, safe-end to elbow welds in recirculation loops 12, 13, 14, and 15.
2. The qualification requirements used for the inspection of overlay-repaired weld 33-FW-22 in the reactor water cleanup system

Background and discussion regarding these weld inspections are contained in Attachment A (for welds 32-WD-046, 32-WD-086, 32-WD-126, and 32-WD-168) and Attachment B (for weld 33-FW-22). Based on the information contained in these attachments, Nine Mile Point Nuclear Station, LLC (NMPNS) will:


- Conduct reinspections of welds 32-WD-046, 32-WD-086, 32-WD-126, and 32-WD-168 in accordance with ASME Code Section XI, Subsection IWB-2420(b), rather than follow the inspection schedule described in NRC Generic Letter 88-01 for IGSCC Category "F" welds; and
- Perform future inspections of weld 33-FW-22 (classified as IGSCC Category "E") in accordance with the qualification requirements of the Electric Power Research Institute's Performance Demonstration Initiative (PDI) Program for weld overlays, rather than the performance demonstration recommendations of Generic Letter 88-01.

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These items are considered changes to regulatory commitments and have been processed using the Nuclear Energy Institute (NEI) guidance contained in NEI 99-04, Revision 0, "Guidelines for Managing NRC Commitment Changes."

Very truly yours,



Bruce S. Montgomery  
General Manager Nuclear Engineering

BSM/DEV/jm

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

## ATTACHMENT A

### WELDS 32-WD-046, 32-WD-086, 32-WD-126, AND 32-WD-168 BACKGROUND, RFO16 RESULTS AND EVALUATION, AND REINSPECTION SCHEDULE

#### Background

In a letter dated September 14, 1999, Niagara Mohawk Power Corporation (NMPC) provided the analytical evaluation of indications found at Nine Mile Point Unit 1 (NMP1) during refueling outage number 15 (RFO15) inservice inspections. The indications were in four (4) reactor recirculation piping safe-end to elbow welds (32-WD-046, 32-WD-086, 32-WD-126, and 32-WD-168). Following discovery of these indications, a detailed investigation of each safe-end to elbow weld was performed, including review of previous ultrasonic examination data; review of fabrication data including construction radiographs; review and analysis of available automated ultrasonic data; performance of additional ultrasonic examinations intended to further characterize and evaluate the indications; and review of remote visual examination data recorded on the inside surface of each weld to provide confirmation of inside surface root conditions.

The results of these reviews and evaluations determined that the ultrasonic indications recorded during RFO15 were fabrication-related indications. The ultrasonic responses from the indications did not exhibit characteristics typically known to be associated with intergranular stress corrosion cracking (IGSCC) (i.e., branching, faceting and axial components). Unlike IGSCC, the indications identified in these welds appeared to be very smooth and non-faceted, and were more indicative of ultrasonic responses generally associated with inconsistent weld root conditions such as non-fusion, lack of penetration, and mismatch. The ultrasonic examination results also showed good correlation with weld conditions and repairs associated with fit-up problems experienced and documented during the 1982-1983 replacement piping installation. It was thus concluded that the RFO15 indications were fabrication related and are weld root conditions that do not indicate the presence of IGSCC.

Nevertheless, as discussed in NMPC's letter dated September 14, 1999, the indications were evaluated in accordance with the 1986 Edition of ASME Code Section XI, IWB-3600 as flaws caused by IGSCC. The evaluation concluded that the indications were acceptable for continued service through the end of the then-current operating cycle (i.e., until RFO16). NMPC conservatively changed the welds to IGSCC Category "F," and stated that future examinations would be performed in accordance with ASME Code Section XI, Subsection IWB-2420(b). The NRC Safety Evaluation (SE) dated January 14, 2000, concurred that continued operation of NMP1 with the flaw indications in the recirculation system safe-end to elbow welds was acceptable until the end of the then-current operating cycle (i.e., until RFO16). The SE also noted that since these flaws were new findings that had been evaluated for only one cycle, they should be addressed per the guidance in NUREG-0313, Rev. 2 (i.e., repaired or inspected and re-evaluated at the end of the operating cycle).

## ATTACHMENT A (Cont'd.)

### RFO16 Reinspection Results and Evaluation

Ultrasonic examinations completed during RFO16 determined that there were no changes in the indications previously identified during RFO15 that could be attributed to indication growth. The absence of flaw growth, as demonstrated by the RFO16 reinspection results, is consistent with characterization of the indications as weld root conditions that do not indicate the presence of IGSCC.

The analytical evaluation submitted in the September 14, 1999, letter considered indication growth by stress corrosion and by fatigue. For fatigue flaw growth, that evaluation utilized a two-year service interval, and assumed cyclic loads consisting of 14 plant startups and shutdowns and ten cycles of seismic loads over the two-year period. The calculated flaw growth due to fatigue was 0.0012 inch. Considering flaw growth due to fatigue, in the absence of IGSCC, and assuming the same number of cyclic loads for every two years of operation as stated above, welds 32-WD-046, 32-WD-086, 32-WD-126, and 32-WD-168 are acceptable for continued service for a period in excess of 50 years before the calculated growth of the deepest inside surface indication reaches the ASME Code allowable flaw depth.

### Reinspection Schedule

Nine Mile Point Nuclear Station, LLC (NMPNS) will conduct reinspections of welds 32-WD-046, 32-WD-086, 32-WD-126, and 32-WD-168 in accordance with ASME Code Section XI, Subsection IWB-2420(b) to confirm the absence of IGSCC, rather than follow the inspection schedule described in Generic Letter 88-01 (i.e., for IGSCC Category "F" welds, inspect every refueling outage). The non-destructive examination technique used for the Section XI weld inspections is identical to that used to detect and size IGSCC. The inspection frequency (three successive inspection periods) is considered acceptable given the characterization of the indications as fabrication-related and the absence of indication growth over the last two years of plant operation. Furthermore, more frequent inspections would not be consistent with the philosophy and practice of maintaining occupational exposures as low as reasonably achievable as noted in 10 CFR 20.1101. Performance of recirculation system piping weld inspections is a significant contributor to refueling outage occupational exposure at NMP1. Activities associated with the RFO16 inspections of welds 32-WD-046, 32-WD-086, 32-WD-126, and 32-WD-168 accrued a dose of approximately 6 Rem per weld (about 24 Rem total). Since RFO16, recirculation system piping dose rates have continued to rise. Based on current dose rate trending, activities associated with inspections of these welds during RFO17 would accrue a total of approximately 36 Rem.

**ATTACHMENT B**  
**WELD 33-FW-22**  
**BACKGROUND AND**  
**QUALIFICATION REQUIREMENTS**

**Background**

Weld 33-FW-22 in the reactor water cleanup system is a non-safety related, non-ASME Section XI weld that is located outboard of the primary containment isolation valves. The weld is not subject to 10 CFR 50.55a(g) inservice inspection (ISI) requirements; however, it was included in the Generic Letter (GL) 88-01 augmented ISI program because of concerns relating to intergranular stress corrosion cracking (IGSCC) susceptibility.

Weld 33-FW-22 was repaired in 1997 due to a through-wall pin hole leak by performing a weld overlay (reference NMPC letters dated May 15, 1997 and May 19, 1997), and is classified as IGSCC Category "E." It was last inspected during RFO15 in 1999. In accordance with GL 88-01, the next inspection of weld 33-FW-22 is due in 2003 during RFO17.

**Qualification Requirements**

GL 88-01 states the following regarding inspection methods and personnel:

"Examinations performed under the Scope of this letter should comply with the applicable Edition and Addenda of the ASME Code, Section XI, as specified in paragraph (g), "Inservice Inspection Requirements" of 10 CFR 50.55a, Codes and Standards, or as otherwise approved by the NRC.

In addition, the detailed procedure, equipment and examination personnel shall be qualified by a formal program approved by the NRC such as that being conducted in accordance with the NDE Coordination Plan agreed upon by NRC, EPRI, and the Boiling Water Reactor Owners Group for IGSCC Research, being implemented at the EPRI NDE Center in Charlotte, North Carolina."

Currently, 10 CFR 50.55a(g)(6)(ii)(C), Implementation of Appendix VIII to Section XI, requires that Supplement 11 to Appendix VIII of Section XI, Division 1, 1995 Edition with the 1996 Addenda of the ASME Code must be implemented effective November 22, 2001. As noted above, weld 33-FW-22 is a non-safety related, non-ASME Section XI weld that is not subject to 10 CFR 50.55a(g) inservice inspection requirements. In a letter from W. H. Bateman (NRC NRR) to M. Bratton (PDI Chairman) dated January 15, 2002, the Staff concluded that the Electric Power Research Institute's Performance Demonstration Initiative (PDI) demonstration program for weld overlays meets the spirit of Appendix VIII, Supplement 11 and is an acceptable alternative to the performance demonstration recommendations of GL 88-01. Therefore, Nine Mile Point Nuclear Station, LLC (NMPNS) will use the PDI program for future examinations of weld 33-FW-22 in lieu of the qualification requirements of GL 88-01.