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February 28, 2001

SVP-01-016

U. S. Nuclear Regulatory Commission
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Quad Cities Nuclear Power Station, Unit 1
Facility Operating License No. DPR-29
NRC Docket No. 50-254

Subject: ASME Section XI, Repair/Replacement requirements for the Unit 1 Safe Shutdown Make-up Pump Injection Line

In accordance with 10 CFR 50.55a "Codes and Standards" paragraph (g)(5)(iii), Quad Cities Nuclear Power Station (QCNPS) is submitting, for U.S. Nuclear Regulatory Commission (NRC) approval, a temporary relief request from American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components", 1989 Edition, no Addenda, Articles IWA-4000 and IWA 7000. Relief is being requested for work that was performed on the Safe Shutdown Make-up Pump (SSMP) injection line during the Unit 1 refueling outage Q1R16, which ended November 3, 2000.

The specific issue relates to three shop welds performed at a contractor facility outside the provisions of an ASME Section XI program. The subject welds have satisfactorily completed radiographic examination, final visual examination, and pressure testing. The issue was identified during a review of the work package, following unit re-start, and has been entered into our corrective action program. The components have been determined to be operable in accordance with Generic Letter 91-18 "Information To Licensees Regarding NRC Manual Section On Resolution Of Degraded And Nonconforming Conditions".

Relief Request CR-34 is attached and requests the three welds on the SSMP line be used as-is for the remainder of the operating cycle which is scheduled to end in October 2002. This request is necessary because it is impractical to perform Code-approved repairs during operation since the feedwater system must be removed from service, which requires an extended plant shutdown.

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Should you have any questions concerning this letter, please contact Mr. W. J. Beck at (309) 654-2241, extension 3609.

Respectfully,



Timothy J. Tulon
Site Vice President
Quad Cities Nuclear Power Station

Attachments: Relief Request CR-34

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

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COMPONENT IDENTIFICATION

Code Class: 2
References: IWA-4000 and 7000
Examination Category: N/A
Item Numbers: N/A
Description: Relief from IWA 4000 and 7000 Repair/Replacement requirements for work performed on Safe Shutdown Make-Up Pump (SSMP), line number 1-2905-4"- B, welds 3, 4 and 7.
Component Number: Line number 1-2905-4"-B, welds 3, 4 and 7

CODE REQUIREMENT

IWC-5222 *System Hydrostatic Test* requires that the system hydrostatic test pressure shall be at least 1.25 times the system pressure for systems with design temperatures above 200 degrees F. However, Code Case 416-1 permits performing a system leakage test in lieu of a hydrostatic test provided NDE be performed in accordance with the methods and acceptance criteria of the 1992 Edition of ASME Boiler and Pressure Vessel Code (BPV) Section III.

IWA-7320 *Welding* requires that welding required for installation of an item to be used for replacement shall be performed by welders who are qualified, and by using procedures that are qualified, in accordance with Section IX and the additional heat treating and impact test required by IWB-4000 "Repair Procedures."

IWA-4400 *Welding and Welder Qualifications (including Welding Operators)* requires:
(a) All welding shall be performed in accordance with Welding Procedure Specifications that have been qualified by the Owner or repair organization in accordance with the requirements of the Codes specified in the Repair Program in accordance with IWA-4120 *Rules and Requirements*.

IWA-7310 *Construction* requires the construction of an item be in accordance with IWA-7200 *Applicable Requirements*, unless the item is specifically exempted by IWA-7400 *Exemptions* from the requirements of this article.

IWA-7140 *Inspection* requires the services of an Authorized Inspection Agency shall be used. The Owner shall notify the Authorized Inspection Agency prior to starting replacement and keep the Inspector informed of the progress so that necessary inspections may be performed.

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IWA-4140 *Inspection* requires the services of an Authorized Inspection Agency shall be used when making a repair by welding, brazing, or metal removal (mechanical or thermal). The Owner shall notify the Authorized Inspection Agency prior to starting the repair and keep the Inspector informed of the progress of the repair so that necessary inspections may be performed.

CODE REQUIREMENTS FROM WHICH RELIEF IS REQUESTED

Quad Cities Nuclear Power Station (QCNPS) is requesting relief from the requirements of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components, 1989 Edition, no Addenda, IWA-4000 *Repair Procedures* and 7000 *Replacement*.

BACKGROUND

As part of the 10 CFR 50 Appendix R program upgrade, Quad Cities rerouted the Safe Shutdown Make-up Pump (SSMP) discharge piping downstream of the High Pressure Coolant System Injection (HPCI) feedwater check valve. The SSMP discharge piping is a 4 inch Class 2 line that connects to the HPCI 14 inch Class 2 injection line which in turn is connected to B feedwater 18 inch Class 2 line. The work request (WR) to reroute the line was correctly classified as Code work and the Repair/Replacement requirements were incorporated into the WR. The work was originally scheduled to be performed by on-site personnel in accordance with Exelon's Repair/Replacement Program. However, three welds (3, 4 and 7), of the SSMP 4 inch line (EPN 1-2905-4"- B), were completed at a contractor facility outside the provisions of the ASME BPV Section XI Repair/Replacement Program.

SPECIFIC CODE ISSUES

- (a) IWC-5222 requires that the system hydrostatic test pressure for the SSMP be 1.25 times normal operating pressure. Instead of a hydrostatic test the Owner chose to invoke Code Case N 416-1 "Alternative Pressure Test Requirements for Welded Repairs or Installation of Replacement Items by Welding Class 1, 2 and 3, Section XI, Division 1" which permits performing a system leakage test in lieu of a hydrostatic test provided NDE be performed in accordance with the 1992 Edition of Section III. Following installation of the SSMP line a pressure test was performed that met the requirements of Code Case N 416-1; however, the RT performed was not performed in accordance with the 1992 Edition of ASME BPV Section III.

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- (b) IWA-7320 requires that welding be performed by qualified welders using procedures that are qualified in accordance with Section XI. IWA-4400 in conjunction with IWA-4512 *Welding Qualifications* requires welding be performed per the Welding Procedure Specifications that have been qualified by the Owner or repair organization in accordance with the requirements of the Codes specified in the Repair Program. These requirements were not satisfied.
- (c) IWA-7310 requires that the construction of an item be in accordance with IWA-7200 unless it can be exempted by IWA-7400. Welds 3, 4 and 7 are on a four inch Class 2 line and not exempted per IWA-7400; therefore, IWA-7200 requirements applied. IWA 7200 requires that replacement of items be performed in accordance with the Edition and Addenda of Section XI as stated in the Owner's Inservice Inspection Program. The ASME BPV Section XI Code further states the replacements shall meet the original Construction Code. The vendor, for welds 3, 4 and 7, utilized a Safety Related Program, but not a ASME BPV Section XI Program. Exelon's Section XI Repair/Replacement was not imposed on the vendor for these welds. As a result the welding procedures, welder qualifications, weld material and non-destructive examination (NDE) results were not in conformance with the ASME BPV Section XI Program. The Code of construction for the SSMP line consists of USAS B31.1 and R-4411 *ComEd General Work Specification*. This requires welders to be qualified in accordance with ASME BPV Section IX and that NDE consist of radiographs (RT) in accordance with ASME BPV Section I.
- (d) IWA-7140 requires the Authorized Nuclear Inspector (ANI) be notified prior to starting a replacement and to be kept informed of the progress. IWA-4140 has a similar requirement. Specifically, the Owner is required to notify the Authorized Inspection Agency prior to starting a welding repair and keep the Inspector informed of the progress so that necessary inspections may be performed. The Owner did not keep the ANI informed when welds 3, 4, and 7 were performed offsite.

BASIS FOR RELIEF

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested on the basis that the proposed alternative would provide an acceptable level of quality and safety.

- (a) The Owner's NDE Radiograph (RT) Level III Inspector reviewed the vendor's RT results and determined that the techniques used in performing the tests would have met ASME BPV Section V, 1992 Edition. Exelon's review of the RT results did not identify any rejectable indications in the welds. The completed radiographs provide sensitivity levels, commensurate to Section III, 1992 Edition, which would identify discontinuities, if present. There were no discontinuities identified as detrimental to the structural integrity of the welds. The welds were inspected and found acceptable,

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during the system leakage test, by certified Exelon Visual examiners to the 1992 Edition of ASME BPV Section XI as required by Code Case N-416-1.

- (b) The issues involving welding procedures, welder qualifications and weld material were resolved by Quad Cities on February 5, 2001. Specifically, the Owner's welding administrator reviewed the vendor's welding procedures, qualifications and materials. Weld materials were sent to Exelon testing laboratories for analysis. Overall, the Owner concluded that the vendor's procedures, qualifications and materials met the requirements of ASME BPV Section IX as required by Section XI Paragraph IWA-4512 and Sub Article IWA-7320..
- (c) Although the welding was not performed under an ASME BPV Section XI Repair/Replacement (R/R) plan, all of the welding performed met the Code of construction requirements of USAS B31.1 and R-4411 *ComEd General Work Specification*.
- (d) Although the ANI was not informed of welds being performed offsite, the ANI was notified prior to starting the reroute of the SSMP line. The ANI review of the original work package was completed per site procedures.

It is impractical to rework (or perform additional testing) at this time since the feedwater system would have to be out of service which requires the Unit to be shutdown.

PROPOSED ALTERNATE EXAMINATIONS

Although ASME BPV Section XI Code non-conformances exist, continued operation until the end of the current fuel cycle is warranted. The basis being Exelon's review of the RT did not find any rejectable indications on the weld. The required visual examinations were performed and no leakage was detected during the required system leakage test. The vendor's, welding qualifications and procedures meet section IX requirements for the subject welds. Weld material used met ASME BPV Section IX specifications. Thus, it has been determined that the piping has structural integrity and is able to perform its design function.

During Q1R17 (October 2002), Quad Cities Nuclear Power Station will cut out the existing SSMP Line number 1-2905-4" – B, welds 3, 4 and 7 and re-perform them in accordance with the Owner's ASME BPV Section XI Repair/Replacement Program.

APPLICABLE TIME PERIOD

Relief is requested for the remainder of the Unit 1 current operating cycle, which is October 2002.