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10 CFR 50.55a

May 15, 2001

Docket Nos. 50-352
50-353

License Nos. NPF-39
NPF-85

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

Subject: Limerick Generating Station, Units 1 and 2
Response to Request for Additional Information Regarding the
Second Ten-Year Interval Inservice Inspection (ISI) Program

References: 1) Letter from J. A. Hutton (PECO Energy Company) to U.S. Nuclear
Regulatory Commission (USNRC), dated January 9, 2001
2) Letter from C. Gratton (USNRC) to J. A. Hutton (Exelon Generation
Company, LLC), dated May 4, 2001

Dear Sir/Madam:

In the Reference 1 letter, Exelon Generation Company, LLC, submitted proposed relief requests and alternatives for review and approval concerning the update of the Second Ten-Year Interval Inservice Inspection (ISI) Program for Limerick Generating Station (LGS), Units 1 and 2. In Reference 2, the U. S. Nuclear Regulatory Commission requested additional information. Attached is our response to that request.

If you have any questions, please contact us.

Very truly yours,



James A. Hutton
Director-Licensing
Attachment

cc: H. J. Miller, Administrator, Region I, USNRC
A. L. Burritt, USNRC Senior Resident Inspector, LGS
C. Gratton, Senior Project Manager, USNRC

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REQUEST FOR ADDITIONAL INFORMATION
REQUEST TO APPLY ASME CODE CASE N-516-1
UNDERWATER WELDING
LIMERICK GENERATING STATION, UNITS 1 AND 2

Question:

"Paragraph 3.2 in Code Case N-516-1 allows for a radiographic examination in lieu of a mechanical bend test on carbon steel (P-1) welder qualifications, if the mechanical bend test fails. This does not agree with ASME Section IX, "Welding and Brazing Qualifications," which states, if a welder fails the mechanical bend test, then her/his retest shall be by mechanical bend test. Also, paragraph 5.0 in this code case allows Charpy V-Notch testing of carbon steel (P-1) materials in lieu of the bend tests required for Welding Procedure Qualifications. This paragraph also does not agree with ASME Section IX.

Underwater welding, can, by it's very nature, be a high hydrogen process. Radiography and Charpy V-Notch tests generally cannot identify hydrogen embrittlement of steel materials. However, a slow bend test could possibly identify this problem. Underwater welding also gives a very high cooling rate, a water quench to the weldment which can make an excessively hard weld.

1. Provide technical justification detailing why an underwater weld will not be affected by hydrogen embrittlement, since there is a high probability that this weld will contain hydrogen. If the bend tests are eliminated, the possibility of identifying this problem may also have been eliminated. Have any supplementary tests been done to show that these underwater welds will be acceptable and not prone to hydrogen cracking?
2. Provide a technical justification why an underwater weld will not be brittle and not prone to cracking due to the high cooling rate associated with underwater welding. Have any supplementary tests been done to show that these underwater welds will be acceptable and not excessively hard?
3. In the context of 1 and 2 above, provide technical justification as to why the elimination of the bend test meets the requirements of 10 CFR 50.55a(a)(3)(i)."

Response:

In response to your questions, Relief Request RR-12-7 will be revised to include the following additional limitations:

- Performance qualifications shall be in accordance with Paragraph 3.2 in Code Case N-516-1, except that immediate retest following a failed mechanical bend test shall be in accordance with ASME Section IX, QW-320.
- Procedure qualification shall be in accordance with Paragraph 3.1 in Code Case N-516-1. The Alternative Procedure Qualification Requirements of 5.0 shall not be used except as noted in Paragraph 4.(b)(4) for the additional requirements for qualification of filler metal.

Attached is a revised Relief Request RR-12-7.

RELIEF REQUEST No. RR-12
Revision 3, continued

Table RR-12-7
Code Case N-516-1

I. IDENTIFICATION OF COMPONENTS

ASME Class 1, 2, and 3 Components Subject to Underwater Repair or Replacement Activities

II. CODE REQUIREMENTS FROM WHICH RELIEF IS REQUESTED

ASME Code, Section XI, IWA-4000 and IWA-7000, provide the general requirements for performing repairs and replacements. Specific criteria on performing underwater welding are not addressed.

Pursuant to 10CFR50.55a(a)(3)(i), Exelon Generation Company, LLC, (Exelon Generation Company) proposes to implement the provisions of ASME Section XI Code Case N-516-1, "Underwater Welding", which is not yet approved by reference in Regulatory Guide 1.147.

III. BASIS FOR RELIEF

ASME, Section XI, IWA-4000 and IWA-7000, do not address the requirements for welded repair or installation of replacement items by welding on ASME Class 1, 2 and 3 pressure boundary components when welding is performed underwater. To address this issue, ASME, Section XI, has issued Code Case N-516-1, "Underwater Welding". Code Case N-516-1 provides welding methods and requirements that may be used when welding for a repair or replacement activity is performed underwater.

Code Case N-516-1 was approved by the ASME Boiler and Pressure Vessel Code Committee on December 31, 1996, but is not yet endorsed in the most recent listing of NRC approved code cases provided in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability - ASME, Section XI, Division 1". The previous version of the Code Case, N-516, is endorsed in Revision 12 of Regulatory Guide 1.147. However, this version of the subject Code Case is only applicable for use on P-No. 8 and P-No. 4X materials. Revision 1 of the Code Case extends the applicability to underwater repairs and replacements made on components made of P-No.1, carbon steel materials as well. Authorization to utilize the guidance provided in Revision 1 of the subject Code Case will allow Exelon Generation Company to control the performance of underwater welding in accordance with an appropriate industry standard.

Exelon Generation Company considers the requirements for underwater welding provided in Code Case N-516-1 to be an improvement over existing requirements and as such will enhance the performance of repairs, replacements and modifications of the safety related components in its nuclear facilities. The Code Case will provide appropriate controls over the welding processes that are needed to implement such repairs, replacements, and modifications in a safe and effective manner. Exelon Generation Company therefore regards these requirements as providing an acceptable level of quality and safety.

RELIEF REQUEST No. RR-12
Revision 3, continued

Table RR-12-7 continued
Code Case N-516-1

IV. ALTERNATIVE PROVISIONS

Exelon Generation Company will use Code Case N-516-1 in its entirety with the following added limitation:

When welding is to be performed on high neutron fluence Class 1 material, then a mockup, using material with similar fluence levels, should be welded to verify that adequate crack prevention measures were used.

Performance qualifications shall be in accordance with Paragraph 3.2 in Code Case N-516-1 except that immediate retest following a failed mechanical bend test shall be in accordance with ASME Section IX, QW-320.

Procedure qualification shall be in accordance with Paragraph 3.1 in Code Case N-516-1. The Alternative Procedure Qualification Requirements of 5.0 shall not be used except as noted in Paragraph 4.(b)(4) for the additional requirements for qualification of filler metal.