



PECO ENERGY

PECO Energy Company
Nuclear Group Headquarters
965 Chesterbrook Boulevard
Wayne, PA 19087-5691

September 30, 1994

Docket No. 50-353
License No. NPF-85

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

Subject: Limerick Generating Station, Unit 2
Request Relief for First Ten Year Interval Inservice
Inspection Program Regarding Dry Welding Requirements

Gentlemen:

Attached for review and approval is Relief Request No. RR-18 for the Limerick Generating Station (LGS), Unit 2, First Ten Year Interval Inservice Inspection (ISI) Program. Relief Request No. RR-18 requests relief from the requirements of Subsection IWA-4000 of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, 1986 Edition, which requires that repairs be performed in accordance with a program that delineates the essential requirements of the complete repair cycle. Welding operations, which is an essential part of the repair cycle, are to be performed in accordance with a Welding Procedure Specification (WPS) by qualified welders which have been qualified as required by Section XI of the ASME Code. Section XI, Subsection IWA-4000, of the ASME Code stipulates that welding operations are to be conducted in accordance with the original design Code (i.e., ASME Code, Section III, 1971 Edition, and Installation Code, Section III, 1974 Edition). These 1971 and 1974 Editions of the design Codes stipulate that welding should not be performed on wet surfaces.

PECO Energy Company is requesting relief from the ASME Code requirements specifying that welding operations not be performed on wet surfaces. This relief is needed to support installation of Unit 2 plant system modification designed to increase the spent fuel storage capacity in the Spent Fuel Pool. A portion of this modification involves cutting and rerouting a section of 12" piping, and as a consequence, two (2) additional welds will be necessary. Due to the location and piping configuration these welds must be performed underwater. Therefore, welding on a dry surface as required by the ASME Code would be considered a hardship. In lieu of performing the welding operations for these (2) welds in accordance with the ASME Code requirements, we propose to implement the requirements specified in Code Case N-516, "Underwater Welding, Section XI, Division I," which establishes the criteria for welding underwater.

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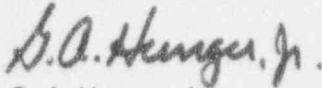
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September 30, 1994
Page 2

This modification work is currently in progress and any welding must be deferred until relief is granted. The details and justification for relief are explained further in the attached Relief Request. We would appreciate your cooperation in providing an expeditious review of Relief Request No. RR-18, and request that the NRC grant relief from the ASME Code requirements that welding only be performed on dry surfaces by October 15, 1994.

If you have any questions or require additional information, please do not hesitate to contact us.

Very truly yours,



G. A. Hunger, Jr.
Director - Licensing

Attachment

cc: T. T. Martin, Administrator, USNRC, Region I (w/ attachment)
N. S. Perry, USNRC Senior Resident Inspector, LGS (w/ attachment)

Limerick Generating Station, Unit 2

**First Ten-Year Interval
Inservice Inspection Program**

RELIEF REQUEST NO. RR-18

Limerick Generating Station, Unit 2
RELIEF REQUEST NO. RR-18
Rev. 0

I. IDENTIFICATION OF COMPONENTS

12" Class 3, Residual Heat Removal (RHR) piping (Line HCC-204), associated with Modification 6118.

II. CODE REQUIREMENTS FROM WHICH RELIEF IS REQUESTED

ASME Code, Section XI, 1986 Edition, IWA-4000 requires repair operations to be performed in accordance with a program delineating the essential requirements of the complete repair cycle. Welding, an essential item in the repair cycle, is to be performed in accordance with a Welding Procedure Specification (WPS) by qualified welders which have been qualified by the Owner in accordance with the requirements of ASME Code, Section IX.

Additionally, ASME Code, Section XI, 1986 Edition, Article IWA-4000 requires welding to be conducted in accordance with the original design Code, ASME Code, Section III, 1971 Edition, and Installation Code, Section III, 1974 Edition.

Paragraph NX-4412 of the 1971 and 1974 construction Codes require that welding shall not be performed on wet surfaces.

Relief is requested from these dry welding requirements.

III. BASIS FOR RELIEF

Modification 6118, (Unit 2 Spent Fuel Pool Rerack), requires the cutting and rerouting of 12" piping spool HCC-204-4-2, and as a consequence, welds W-1201 and W-1301 will be added. Because of the configuration and location of the particular applicable components, welding on a dry surface would be a hardship.

The piping in question is in the Spent Fuel Pool and underwater. This specific request is made for permission to use ASME Code, Section XI Code Case N-516 to satisfy the requirements for underwater welding on this particular modification.

Limerick Generating Station, Unit 2
RELIEF REQUEST NO. RR-18
Rev. 0
(Continued)

IV. ALTERNATE PROVISIONS

In lieu of welding in accordance with the requirements ASME Code, Section XI, Article IWA-4000, Limerick Generating Station requests approval to make two (2) welds in a Class 3 system of Unit 2 by welding under water in accordance with the requirements of Code Case N-516. The welds to be made are butt welds in austenitic stainless steel using austenitic stainless steel backing rings and welding material.

- o Repair or replacement of P-No.8 and P-No. 4X materials and associated welds may be performed underwater provided the welding procedures and welders or welding operators are qualified in accordance with Section IX and the additional essential variables of para. 2.0 or 3.0, as applicable.
- o Welding Procedure Specifications for wet underwater welding shall be qualified to the requirements of Section IX for groove welds. The following variables also apply:
 - (a) Additional essential variables:
 - (1) a change in the method for underwater transport and storage of filler material
 - (2) addition or deletion of waterproof or supplementary coatings for the filler metal or a change in the type of any waterproof or supplementary coatings;
 - (3) a change in electrode diameter beyond the range used in qualification;
 - (4) a change in depth beyond that qualified in accordance with Table 2.1-1 of Code Case N-516;
 - (5) a change in the SFA specification AWS filler metal classification, or, if not conforming to an AWS filler metal classification, a change in the manufacturer's trade name for the electrode or filler metal;
 - (6) addition of welding positions other than those qualified.
 - (7) a change from upward to downward, or vice versa, in the progression specified for any pass of a vertical weld;
 - (8) a change from the stringer bead technique to the weave bead technique, or vice versa, in the vertical position;
 - (9) a change from ac to dc, or vice versa; and, in dc welding, a change in polarity;
 - (10) a change from wet backside to dry backside for backing thickness less than 1/4 in.
 - (b) Additional nonessential variables:
 - (1) an increase in time of electrode exposure to water;
 - (2) a decrease in included angle, a decrease in root opening, or an increase in root face.

Limerick Generating Station, Unit 2
RELIEF REQUEST NO. RR-18

Rev. 0
(Continued)

- o Welders and welding operators for wet underwater welding shall be qualified in accordance with Section IX and the variables listed below. When a welder or welding operator has not welded with a process in a wet underwater environment for at least six months, the qualifications for that underwater process shall expire.
 - (a) A change in the SFA specification AWS filler metal classification.
 - (b) Addition or deletion of waterproof or supplementary coatings for the filler metal or a change in the type of any waterproof or supplementary coatings.
 - (c) A change from salt or borated water to fresh water.
 - (d) Use of a larger diameter electrode than that used during performance qualification.
 - (e) A change in depth beyond that qualified in accordance with Table 2.1-1.
 - (f) Addition of welding positions other than those qualified in accordance with Table 2.1-2 of Code Case N-516.
 - (g) A change in polarity or type of power source (e.g., rectifier, motor-generator, inverter).
 - (h) A change from stringer bead to weave technique.
 - (i) A change in welder's view from beneath to above the water surface.
 - (j) A decrease in the included angle, a decrease in root opening, or an increase in the root face.
- o Each filler metal heat, lot, waterproof coating type, and supplementary coating type to be used in production shall be tested in accordance with the following requirements:
 - (a) Using the production welding process, an all-weld-metal coupon in accordance with SFA5.4 will be prepared at a depth such that the depth of the production weld will be within the depth limitations of Table 2.1-1 of Code Case N-516.
 - (b) The coupon shall be tested as follows:
 - (1) directly measure the ferrite number for austenitic stainless steel, Section IX, QW-442 A-No. 8 filler metal;
 - (2) perform a tension test on one all-weld-metal specimen.
 - (3) determine as-deposited chemical composition in accordance with the applicable SFA specification.
 - (c) Acceptance criteria:
 - (1) the ferrite number shall meet the requirements of the Construction Code;
 - (2) the ultimate tensile strength shall meet the minimum tensile strength specified for either of the base metals to be joined;
 - (3) the chemical composition shall meet the applicable SFA specification requirements for the as deposited chemical composition.

Limerick Generating Station, Unit 2
RELIEF REQUEST NO. RR-18

Rev. 0
(Continued)

- o A confirmation weld shall be produced at the underwater location before production welding. This weld shall be used by the repair organization to confirm that the welding system is functioning properly. If it is not practicable to perform the confirmation weld at the actual location (e.g., because of ALARA concerns), it shall be performed at another location under similar underwater conditions. The qualified welding procedure, as amended below, shall be used for the confirmation weld.
 - (a) a confirmation weld shall be made with each welding system used in production;
 - (b) for material less than 1/4 in. thick, the confirmation weld shall simulate the production weld joint pressure differential and wet or dry backside conditions;
 - (c) the confirmation weld shall be made in one of the positions to be used in productions;
 - (d) the confirmation weld shall be at least 6 in. long or shall simulate the production weld length.
- o Procedure qualification at the underwater location may be substituted for the confirmation weld.
- o When it is impractical to perform the examination required by this Division or the Construction Code because of the underwater environment, the following alternative requirements shall be met. Acceptance criteria shall be in accordance with the requirements of this Division or the Construction Code. The remote visual examinations in (a) and (b) below shall be demonstrated to have sufficient sensitivity to detect indications rejectable by the surface examination acceptance criteria.
 - (a) The cavity, after defect removal, shall be visually examined remotely at a minimum of 5X, in lieu of any required surface examination and evaluated using surface examination acceptance criteria.
 - (b) The weld shall be visually examined remotely at a minimum of 5X, in lieu of any required surface examination and evaluated using surface examination acceptance criteria.
 - (c) The weld may be ultrasonically examined using a procedure qualified for the underwater environment in lieu of any other required volumetric examination.