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MAR 0 5 2004

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

SUSQUEHANNA STEAM ELECTRIC STATION
PROPOSED RELIEF REQUEST NO. RR-27 TO
THE SECOND 10-YEAR INSERVICE INSPECTION
PROGRAM FOR SUSQUEHANNA SES UNIT 2
PLA-5724 **Docket No. 50-388**

In accordance with 10 CFR 50.55a(a)(3)(i), PPL Susquehanna, LLC (PPL) requests the NRC approve the use of an alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI requirements regarding examination of Class 1, Examination Categories B-F and B-J piping welds (N8A and N8B nozzles) at Susquehanna Steam Electric Station (SSES) Unit 2. Attachment 1 provides a copy of Relief Request No. RR-27. Attachment 2 provides a copy of ASME Code Case N-663.

The proposed alternative will allow SSES Unit 2 to avoid unnecessary examinations and radiological dose, while maintaining an acceptable level of quality and safety for the examination of the affected welds. The relief request is applicable to the second 10-year inservice inspection interval for SSES Unit 2. The applicable code of record for this inspection interval is the 1989 Edition with no Addenda of the ASME Code, Section XI.

PPL requests approval of the enclosed relief request by October 1, 2004 in order to finalize the ISI examinations to be performed during the SSES Unit 2 12th Refueling and Inspection Outage in spring 2005. Approval of the alternative is requested for use during the second 10-year inservice inspection program, or until Code Case N-663 is published in a future version of NRC Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability – ASME Section XI, Division 1," in which case the provisions of the Code Case N-663 conditions and limitations specified in Regulatory Guide 1.147 will be followed.

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Similar relief requests have been granted to Arkansas Nuclear 1, Grand Gulf, River Bend, and Waterford 3 plants (refer to ADAMS Accession Numbers ML030150438 and ML032390190), and requested by the Indian Point, Pilgrim and Brunswick plants (Refer to ADAMS Accession Numbers ML033490593 and ML040280347).

There are no new commitments made in this letter. If you have any questions, please contact Mr. C. T. Coddington at (610) 774-4019.

Sincerely,

B. L. Shriver

Attachments: Attachment 1 – Relief Request No. RR-27 for Unit 2
Attachment 2 – ASME Code Case N-663 (For Information Only)

Copy: NRC Region 1
Mr. R. Guzman, NRC Project Manager
Mr. S. Hansell, Sr. Resident Inspector
Mr. R. Janati DEP/BRP

ATTACHMENT 1

RELIEF REQUEST NO. RR-27 FOR UNIT 2

PPL SUSQUEHANNA, LLC
SUSQUEHANNA SES UNIT 2
SECOND 10-YEAR INTERVAL
RELIEF REQUEST NO. RR-27

COMPONENTS AFFECTED

Component Numbers:	Class 1 piping welds (NPS 4 and larger)
Examination Category:	B-F and B-J [N8A and N8B nozzles]
Item Numbers:	B5.10 and B9.11

APPLICABLE CODE EDITION AND ADDENDA

The Code of record for the second 10-year inservice inspection interval is the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 1989 Edition with no Addenda.

CODE REQUIREMENTS

ASME Section XI IWB-2500 requires components be examined and pressure tested as specified in Table IWB-2500-1. This table requires a sampling of piping welds (as well as other components) be subjected to various types of non-destructive examinations (NDE) (i.e., volumetric and/or surface examinations) and pressure testing (i.e., visual, VT-2).

REASON FOR REQUEST

ASME Code Case N-663 provides an alternative, which provides an acceptable level of quality and safety. This alternative also reduces dose (1 rem) because required examinations would be reduced.

PROPOSED ALTERNATIVE

Pursuant to 10 CFR 50.55a(a)(3)(i), PPL proposes to use ASME Code Case N-663 in its entirety as an alternative to the surface examination requirements of Table IWB-2500-1 for examination categories B-F (NPS 4 and larger) and B-J (NPS 4 and larger).

BASIS FOR PROPOSED ALTERNATIVE

The subject item numbers in ASME Section XI require a volumetric and surface examination on selected piping welds to ensure that generic degradation mechanisms are not active on either the inside diameter (I.D.) or the outside diameter (O.D.). However, these welds were selected using a deterministic set of requirements that are not based upon degradation mechanisms. ASME Code Case N-663 provides an alternative to the current ASME Section XI requirements for defining the number and location of surface examinations for piping components.

The ASME Section XI Task Group on ISI Optimization, Report No. 92-01-01, *Evaluation of Inservice Inspection Requirements for Class 1, Category B-J Pressure Retaining Welds in Piping*, dated July 1995, concluded, with 50 units responding with a total of 9333 welds inspected, only two (2) welds (0.02%) were found to have flaws detected by Section XI surface examinations. These flaws were determined to be fabrication-induced.

In parallel with the above, several risk-informed code cases have been developed for use on piping welds (e.g., ASME Code Cases N-560, N-577, and N-578). One of the methods for risk-informed piping examination is through use of Electric Power Research Institute (EPRI) topical report TR-112657, Revision B-A, *Revised Risk-Informed Inservice Inspection Evaluation Procedure*, approved by NRC safety evaluation dated October 28, 1999. Table 4-1, *Summary of Degradation-Specific Inspection Requirements and Examination Methods*, of the EPRI report lists the required degradation mechanisms to be evaluated in Class 1, 2, and 3 piping. It identifies the risk-informed examination method required for each of these degradation mechanisms. The only degradation mechanism that requires a surface examination is O.D. chloride cracking. These two initiatives led ASME to investigate the value of surface examinations.

Code Case N-663 incorporated lessons learned from the risk-informed initiatives and industry examination experience into Section XI by requiring that an evaluation be conducted to identify locations, if any, where a surface examination would be of benefit from a generic piping degradation perspective. The results of this evaluation identify where O.D. degradation is most likely to occur by reviewing plant-specific programs and practices and operating experience. If the potential for degradation is identified, Code Case N-663 defines examination techniques, volumes, and frequencies. As such, implementing Code Case N-663 will identify appropriate locations for surface examination, if any, and eliminate the unnecessary examinations. Other ASME Code, Section XI examination requirements (subject to any approved relief requests) for the subject welds, including volumetric examinations and pressure testing, will continue to be performed.

Code Case N-663 was approved by the ASME Boiler and Pressure Vessel Code Committee on September 17, 2002, but has not yet been included in the most recent listing of NRC approved code cases provided in Revision 13 of Regulatory Guide 1.147, *Inservice Inspection Code Case Acceptability-ASME Section XI Division 1*.

DURATION OF PROPOSED ALTERNATIVE

Approval of the alternative is requested for use during the second 10-year inservice inspection program, or until Code Case N-663 is published in a future version of NRC Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability – ASME Section XI, Division 1," in which case the provisions of the Code Case N-663 conditions and limitations specified in Regulatory Guide 1.147 will be followed.

ATTACHMENT 2

ASME Code Case N-663
(For Information Only)

Approval Date: September 17, 2002
Expiration Date: September 17, 2005

Case N-663
Alternative Requirements for Classes 1 and 2 Surface Examinations Section XI, Division 1

Inquiry: What alternative to the surface examination requirements for piping welds of Examination Categories B-F, B-J, C-F-1, and C-F-2 may be used?

Reply: It is the opinion of the Committee that in lieu of the surface examination requirements for piping welds of Examination Category B-F (NPS 4 and larger), B-J (NPS 4 and larger), C-F-1, and C-F-2, surface examinations may be limited to areas identified by the Owner as susceptible to outside surface attack.

Susceptibility to outside surface attack shall be determined in accordance with Table 1.

Examination Category B-F less than NPS 4 and Examination Category B-J less than NPS 4 shall be examined in accordance with IWB-2500.

All areas identified as susceptible to outside surface attack shall be examined during each interval. The requirements of IWB-2411, IWB-2412, IWC-2411, and IWC-2412, as applicable, shall be met. Acceptance standards shall be in accordance with IWB-3514 or IWC-3514, as applicable. The areas shall be reexamined in the same sequence, during subsequent inspection intervals over the service lifetime of the piping item, to the extent practical.

TABLE 1
SUSCEPTIBILITY CRITERIA

Mechanism	Criteria
External chloride stress corrosion cracking	• austenitic stainless steel base metal, welds, or heat affected zone (HAZ), and • operating temperature > 150°F, and • a piping outside surface is within five pipe diameters of a probable leak path (e.g., valve stem) and is covered with nonmetallic insulation that is not in compliance with U.S. NRC Regulatory Guide 1.36 (e.g., chloride content) or equivalent requirements or • austenitic stainless steel base metal, welds, or HAZ, and • a piping outside surface is exposed to wetting from a concentrated chloride-bearing environment (e.g., seawater, brackish water, brine)
Other outside surface initiated mechanisms	Items identified as susceptible to outside surface attack by a plant-specific service history review. This review should include plant-specific processes and programs that minimize chlorides and other contaminants.

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