FPL Energy
Seabrook Station

FPL Energy Seabrook Station
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November 12, 2008

Docket No. 50-443
SBK-L-08190

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Seabrook Station

Supplement to a Request for Use of an Alternate Depth Sizing Qualification

References:

1. FPL Energy Seabrook, LLC (FPL Energy Seabrook) letter SBK-L-07174, Request for Use of an Alternate Depth Sizing Qualification, September 30, 2008.
2. NRC conference call with FPL Energy Seabrook, October 30, 2008.

In a letter dated September 30, 2008, FPL Energy Seabrook, LLC (FPL Energy Seabrook) requested approval for use of an alternate depth sizing qualification on reactor pressure vessel (RPV) nozzle-to-safe end dissimilar metal (DM) welds and safe end-to-pipe welds from the inside surface pursuant to 10 CFR 50.55a(a)(3)(i).

In a conference call with the NRC on October 30, 2008, FPL Energy Seabrook discussed questions posed by the NRC related to the FPL Energy Seabrook request and agreed to revise the request to include additional information on the weld type (shop welds) and to reformat the request pursuant to 10 CFR 50.55a(g)(5)(iii), "Inservice Inspection Impracticality." In addition, FPL Energy Seabrook has removed references to the safe end-to-pipe welds from the request.

FPL Energy Seabrook is performing volumetric examinations on RPV nozzle-to-safe end DM welds from the inside surface utilizing the ultrasonic (UT) examination technique during the upcoming end-of-second interval ten-year inservice inspection (ISI). FPL Energy Seabrook will implement the NRC-approved alternative requirements of Code Case N-695 as described in Attachment 1 of this letter.

Code Case N-695 requires that examination procedures and personnel demonstrate a depth sizing error of less than 0.125-inch root mean square (RMS). FPL Energy Seabrook

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proposes the use of an alternative RMS depth sizing error that is greater than the 0.125-inch RMS error value stated in Code Case N-695.

ASME Code, Section XI (Appendix VIII), Code Case N-695, requires that the maximum error for flaw depth measurements, when compared to the true flaw depth, must not exceed 0.125-inch RMS error. The nuclear power industry has attempted to qualify personnel and procedures for examinations performed from the inside surface of DM welds (Supplement 10, Code Case N-695) since November, 2002. The most recent attempt at achieving the 0.125-inch RMS was in early 2008. This attempt as well as all previous attempts did not achieve the required RMS values for personnel or procedures.

The difficulties are associated with the surface roughness of the field welds. At this time, achieving a 0.125-inch maximum RMS error is impractical. The vendor that will be performing the examinations for FPL Energy Seabrook has achieved a 0.189-inch RMS in their Supplement 10 (Code Case N- 695) qualification.

FPL Energy Seabrook requests review and approval of this proposal to support the Seabrook Unit 1 refueling outage in the fall of 2009. Similar alternatives have been submitted for NRC review and approval and are referenced in the attached request.

If you have any questions regarding this submittal, please contact Mr. Michael O'Keefe, Licensing Manager, at (603) 773-7745.

Sincerely,

FPL Energy Seabrook, LLC

Gene St. Pierre
Site Vice President

cc: S. J. Collins, NRC Region I Administrator
G. E. Miller, NRC Project Manager
W. J. Raymond, NRC Resident Inspector

Attachment 1 to SBK-L-08190

ATTACHMENT 1

10 CFR 50.55a REQUEST
Proposed Alternative in Accordance with 10 CFR 50.55a(g)(5)(iii)

REQUEST FOR RELIEF TO USE AN ALTERNATIVE TO THE DEPTH SIZING QUALIFICATION REQUIREMENT OF ASME SECTION XI, SUPPLEMENT 10 FOR PIPING EXAMINATIONS PERFORMED FROM THE INSIDE SURFACE FOR SEABROOK UNIT 1

1.0 ASME Code Components Affected

Code class:	1
System:	RC
Examination Categories:	R-A, Risk Informed Inservice Inspection Program

TABLE 1

WELD NUMBERS BY ISI DESIGNATION

Item	Location	Nozzle-to-Safe End Weld	Weld Type
1	RPV "A" Outlet Nozzle @202°	RC RPV-SE-301-121-A	Shop
2	RPV "B" Inlet Nozzle, @247°	RC RPV-SE-302-121-B	Shop
3	RPV "C" Inlet Nozzle, @293°	RC RPV-SE-302-121-C	Shop
4	RPV "D" Outlet Nozzle, @338°	RC RPV-SE-301-121-D	Shop
5	RPV "E" Outlet Nozzle, @22°	RC RPV-SE-301-121-E	Shop
6	RPV "F" Inlet Nozzle, @67°	RC RPV-SE-302-121-F	Shop
7	RPV "G" Inlet Nozzle, @113°	RC RPV-SE-302-121-G	Shop
8	RPV "H" Outlet Nozzle, @158°	RC RPV-SE-301-121-H	Shop

2.0 Applicable Code Edition and Addenda

FPL Energy Seabrook, LLC (FPL Energy Seabrook) is currently in the second 10-year in-service inspection (ISI) interval. The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) of record for the current 10-year ISI interval is Section XI, 1995 Edition, including Addenda through 1996 (Reference 1).

3.0 Applicable Code Requirement

The examination of Class 1 piping welds is required to be performed using procedures, personnel and equipment qualified to the criteria of the applicable ASME Code, Section XI, Appendix VIII, Supplements. The applicable supplement to this relief is Supplement 10, "QUALIFICATION REQUIREMENTS FOR DISSIMILAR METAL PIPING WELDS."

Paragraph 3.2, "Sizing Acceptance Criteria," Subparagraph (b) of Supplement 10, states "examination procedures, equipment, and personnel are qualified for depth-sizing when the RMS [root mean square] error of the flaw depth measurements, as compared to the true flaw depths, is less than or equal to 0.125-inch (3.2mm)."

Code Case N-695, "Qualification Requirements for Dissimilar Metal Piping Welds, Section XI, Division 1," provides alternative requirements to Appendix VIII, Supplement 10. Paragraph 3.3(c) of Code Case N-695 states, "Examination procedures, equipment, and personnel are qualified for depth-sizing when the RMS error of the flaw depth measurements, as compared to the true flaw depths, does not exceed 0.125-in. (3 mm)." Code Case N-695 is unconditionally approved for use through Regulatory Guide 1.147, "In-service Inspection Code Case Acceptability, ASME Section XI, Division 1," Revision 15.

1.0 Impracticality of Compliance

FPL Energy Seabrook is performing volumetric examination of the reactor pressure vessel (RPV) nozzle-to-safe end dissimilar metal (DM) welds from the inside surface during the upcoming ten-year RPV ISI. FPL Energy Seabrook will implement the NRC-approved alternative requirements of Code Case N-695 for the qualification of procedures and personnel for examinations performed during the upcoming ten-year RPV ISI.

This relief is being submitted due to the impracticality of meeting the required 0.125-inch RMS value required by Code Case N-695. Code Case N-695 requires that qualified procedures and personnel shall demonstrate a flaw depth sizing error less than or equal to 0.125-inch RMS. The nuclear power industry has attempted to qualify personnel and procedures for depth sizing examinations performed from the inside surface of dissimilar metal welds (Supplement 10, Code Case N-695) since November 2002. To date, no personnel or procedures have achieved less than or equal to the ASME Code required 0.125-inch RMS error. This has been verified in the EPRI letter to FPL Energy Seabrook dated June 30, 2008 (Reference 2).

The inability of examination procedures to achieve the required RMS value is primarily due to a combination of factors such as surface condition, scan access, base materials and the dendritic structure in the welds themselves. The combination of these factors has proven too difficult for procedures and personnel to achieve an RMS value that meet current Code requirements or Code Case N-695.

2.0 Burden Caused by Compliance

The most recent attempt at achieving 0.125-inch RMS was in early 2008. This attempt, as well as previous attempts, did not achieve the required RMS values for personnel or procedures. The qualification attempts have been substantial. The attempts have involved multiple vendors, ultrasonic instruments, personnel and flaw depth sizing methodologies, all of which have been incapable of achieving the 0.125-inch RMS value.

The process of qualification for this type of flaw sizing is well established. The cost and effort involved to perform a successful demonstration is quantifiable when a capable technique is available. However, when a capable technique is not available, the costs and effort required for a successful demonstration cannot be easily quantified.

3.0 Proposed Alternative And Basis for Use

For the examination of welds listed in Table 1 of this relief request, FPL Energy Seabrook proposes using an alternative depth-sizing RMS error value greater than the 0.125-inch RMS error value stated in Code Case N-695. Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested to use an alternative that will provide an acceptable level of quality and safety.

As an alternative to the required RMS error stated in Code Case N-695 for procedure and personnel depth sizing, Seabrook will add the difference between the required RMS value of 0.125-inch RMS and the actual RMS value achieved by the FPL Energy Seabrook inspection vendor to the flaw depth as determined during flaw sizing. The inspection vendor chosen has achieved an RMS of 0.189" for Supplement 10 welds.

Applying the difference between the required RMS error and the achieved RMS error to the actual flaw size, will ensure a conservative flaw bounding approach and provide an acceptable level of quality and safety.

4.0 Duration of Proposed Alternative

The alternative requirements of this request will be applied for the remaining duration of the current second 10-year ISI interval.

5.0 Precedents

Similar relief requests have been granted to the following plants:

- NRC to Southern Nuclear Operating Company Inc. letter, "Joseph M. Farley Nuclear Plant Unit 1, and Vogtle Electric Generating Plant, Units 1 and 2 - Evaluation of Relief Request ISI-GEN-ALT-06-02," (TAC Nos. MD 2482, MD2483 and MD2484), dated September 29, 2006. (ML062770359)

- NRC to Exelon Generating Company, LLC letter, "Braidwood Station, Units 1 and 2 – Relief Request (12R-49) Regarding In-service Inspection Program Alternative Method (TAC Nos. MD5996 and MD5997)," dated November 8, 2007. (ML072760048)

6.0 References

1. ASME Code, Section XI, 1995 Edition, including Addenda through 1996.
2. EPRI Letter Dated 6/30/08, "Summary of WESDYNE International, LLC Supplements 2 & 10 Depth Sizing Results Obtained from the Inside Surface."