



FPL Energy
Seabrook Station

FPL Energy Seabrook Station
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September 30, 2008

Docket No. 50-443

SBK-L-08174

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Seabrook Station

Request for Use of an Alternate Depth Sizing Qualification

Pursuant to 10 CFR 50.55a(a)(3)(i), FPL Energy Seabrook, LLC (FPL Energy Seabrook) requests 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.

FPL Energy Seabrook is performing volumetric examinations on RPV nozzle-to-safe end DM welds and safe end-to-pipe welds from the inside surface utilizing the ultrasonic (UT) examination technique during the upcoming end-of-interval ten-year inservice inspection (ISI). FPL Energy Seabrook will implement the NRC approved alternative requirements of Code Cases N-695 and N-696 as described in Attachment 1 of this letter.

Code Cases N-695 and N-696 require that examination procedures and personnel demonstrate a depth sizing error of less than 0.125-inch root mean square (RMS). FPL Energy Seabrook proposes the use of an alternative RMS depth sizing error that is greater than the 0.125-inch RMS error value stated in Code Cases N-695 and N-696.

ASME Code Section XI (Appendix VIII), Code Case N-695 and Code Case N-696 require 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) and austenitic similar metal welds (Supplement 2, Code Case N-696) 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 FPL Energy Seabrook has chosen achieved a 0.189-inch RMS in their Supplement 10 (Code Case N-

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695) performance demonstration and a 0.245-inch RMS error in their coordinated implementation of Supplements 2 and 10 (Code Case N-696).

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-08174

ATTACHMENT 1

10 CFR 50.55a Request Proposed Alternative in Accordance with 10 CFR 50.55a(a)(3)(i)

REQUEST FOR RELIEF TO USE AN ALTERNATIVE DEPTH SIZING QUALIFICATION REQUIREMENT FOR THE COORDINATED IMPLEMENTATION OF ASME SECTION XI, SUPPLEMENTS 2 AND 10 FOR PIPING EXAMINATIONS PERFORMED FROM THE INSIDE SURFACE FOR SEABROOK UNIT 1

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	Safe End-to-Pipe Weld
1	RPV "A" Outlet Nozzle @202°	RC RPV-SE-301-121-A	RC 0001-01 01
2	RPV "B" Inlet Nozzle, @247°	RC RPV-SE-302-121-B	RC 0003-01 03
3	RPV "C" Inlet Nozzle, @293°	RC RPV-SE-302-121-C	RC 0006-01 03
4	RPV "D" Outlet Nozzle, @338°	RC RPV-SE-301-121-D	RC 0004-01 01
5	RPV "E" Outlet Nozzle, @22°	RC RPV-SE-301-121-E	RC 0007-01 01
6	RPV "F" Inlet Nozzle, @67°	RC RPV-SE-302-121-F	RC 0009-01 03
7	RPV "G" Inlet Nozzle, @113°	RC RPV-SE-302-121-G	RC 0012-01 03
8	RPV "H" Outlet Nozzle, @158°	RC RPV-SE-301-121-H	RC 0010-01 01

Applicable Code Edition and Addenda

FPL Energy Seabrook, LLC (FPL Energy Seabrook) is currently in the 2nd 10-year inservice 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).

Applicable Code Requirement

The examination of Class 1 and 2 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 2 and 10. The applicable supplements to this relief are Supplement 2, "QUALIFICATION REQUIREMENTS FOR WROUGHT AUSTENITIC PIPING WELDS" and Supplement 10, "QUALIFICATION REQUIREMENTS FOR DISSIMILAR METAL PIPING WELDS".

Paragraph 3.2, "Sizing Acceptance Criteria," Subparagraph (b) of Supplement 2, states that the "examination procedures, equipment, and personnel are qualified for depth-sizing if the results of the performance demonstration satisfy the following criteria: the RMS error of the flaw depths estimated by ultrasonics, as compared with the true flaw depths, shall not exceed 0.125-inch."

Paragraph 3.2, "Sizing Acceptance Criteria," Subparagraph (b) of Supplement 10, states that the "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, do 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.

Code Case N-696, "Qualification Requirements for Appendix VIII Piping Examinations Conducted From the Inside Surface," provides alternative requirements to Appendix VIII, Supplements 2, 3 and 10 when performed from the inside surface. Paragraph 3.3(d) of Code Case N-696 states, "Supplement 2 or Supplement 3 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, do not exceed 0.125-in. (3 mm) RMS, when combined with a successful Supplement 10 qualification."

Reason for Request

FPL Energy Seabrook is performing volumetric examination of RPV nozzle-to-safe end dissimilar metal (DM) welds and the adjacent safe end-to-pipe welds from the inside surface during the upcoming ten-year RPV ISI.

FPL Energy Seabrook will implement the NRC-approved alternative requirements of Code Cases N-695 and N-696 for the qualification of procedures and personnel for examinations performed during the upcoming ten- year RPV ISI.

Code Cases N-695 and N-696 require that qualified procedures and personnel shall demonstrate a flaw depth sizing error less than or equal to 0.125 RMS. To date, no personnel or procedure has achieved less than or equal to the ASME Code required 0.125 inch RMS error. This has been verified in the EPRI letter dated June 30, 2008 (Reference 2).

The inability of the 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 effect of the dendritic structure of the welds themselves. The combination of all of these factors has proven too difficult for the procedures and personnel to achieve an RMS value that meets the current Code requirements or Code Case N-695 and N-696.

Proposed Alternative and Basis for Use

FPL Energy Seabrook proposes using an alternative depth-sizing RMS error value greater than the 0.125-inch RMS error value stated in Code Cases N-695 and N-696. Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested to use an alternative that will provide an acceptable level of quality and safety.

As an alternative to the ASME Code-required RMS error for procedure and personnel depth sizing, FPL Energy Seabrook will add the difference between the ASME Code required RMS value of 0.125-inch RMS and the actual RMS value achieved by FPL Energy Seabrook's 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 and an RMS of 0.367" for Supplement 2.

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.

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).

Duration of Proposed Alternative

The alternative requirements of this request will be applied for the duration of up to and including the last outage of the current 2nd 10-year ISI interval.

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."