



FPL Energy

Point Beach Nuclear Plant

November 16, 2007

NRC 2007-0093
10 CFR 50.55a

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

Point Beach Nuclear Plant, Units 1 and 2
Dockets 50-266 and 50-301
Renewed License Nos. DPR-24 and DPR-27

Response to Request for Additional Information
10 CFR 50.55a Requests Relief Requests RR-19 and RR-20
Associated With Examination of the Reactor Pressure Vessels
Fourth Ten-Year Inservice Inspection Program Interval

- Reference: (1) Nuclear Management Company, LLC to NRC Letter Dated April 6, 2007, 10 CFR 50.55a Requests Relief Requests RR-18, RR-19 and RR-20 Associated With Examination of the Reactor Pressure Vessels Fourth Ten-Year Inservice Inspection Program Interval, (ML070990077)
(2) NRC to FPL Energy-Point Beach LLC Letter Dated October 31, 2007, Request for Additional Information Related to the Fourth 10-Year Interval Inservice Inspection Program Plan Requests for Relief Nos. RR-19, and RR-20, (ML072630463)

Via Reference (1) above Nuclear Management Company, LLC (NMC) submitted a proposed relief request for Point Beach Nuclear Plant (PBNP), Units 1 and 2, for Commission review and approval pursuant to 10 CFR 50.55a.

On September 26, 2007, a telephone conference was held between NRC and PBNP personnel. During the conference, the NRC staff and PBNP personnel discussed the relief requests and additional information requested. It was agreed that the response to the request for additional information for Relief Requests 19 and 20 would be submitted by November 16, 2007.

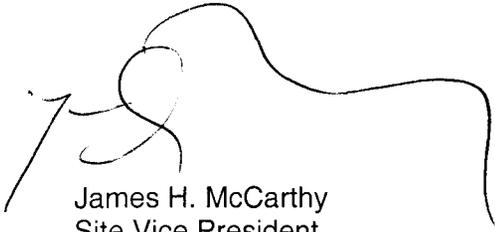
Enclosure 1 of this letter provides the requested information. Enclosure 2 contains photos and drawings of the structures in question. Enclosure 3 resubmits RR-20. RR-20 was revised to incorporate attainable coverage and to reference a relief request that was previously approved by the Commission.

In accordance with 10 CFR 50.91, a copy of this response to a request for additional information is being provided to the designated Wisconsin Official.

This letter contains no new commitments and no revisions to existing commitments.

Very truly yours,

FPL Energy Point Beach, LLC

A handwritten signature in black ink, appearing to read 'J. McCarthy', with a long horizontal flourish extending to the right.

James H. McCarthy
Site Vice President

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Point Beach Nuclear Plant, USNRC
Resident Inspector, Point Beach Nuclear Plant, USNRC
PSCW

ENCLOSURE 1

FPL ENERGY POINT BEACH POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

RELIEF REQUESTS RR-19 AND RR-20 ASSOCIATED WITH EXAMINATION OF THE REACTOR PRESSURE VESSELS FOURTH TEN-YEAR INSERVICE INSPECTION PROGRAM INTERVAL

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

The following information is provided by FPL Energy Point Beach, LLC (FPLE-PB) in response to the NRC staff's request for additional information resulting from a letter dated October 31, 2007.

Question 1

RR-19

The licensee requested relief from the ASME Code, Section XI, Examination Category F-A, Item F1.40 that requires a visual, VT-3 examination of all of the Point Beach Plant, Units 1 and 2 reactor pressure vessel (RPV) supports.

- a. *Provide the number, location, component identification numbers for, and identify all welds associated with the RPV supports for Point Beach Plant, Units 1 and 2.*
- b. *Provide a representative drawing of a RPV support which shows the areas required to be inspected and any interferences which make the required inspections impractical.*

FPLE-PB Response to Question 1

- a. The Category F-A, Item F1.40, portion of the RPV support structure for each unit consists of a ring girder supported by six legs. There are two attachments welded to the RPV (considered to be Category B-K as discussed in RR-18) and a weld deposit support pad on each nozzle that sits on the ring girder. The welds within the Category F-A support assembly as a whole are not individually identified. The component supports (rings/legs) for the Point Beach Nuclear Plant (PBNP) RPVs are identified as RPV-Support for each unit.
- b. See Drawing 1 and Photo 1, 2, and 3 in Enclosure 2.

Question 2

RR-20

The licensee requested an alternative to examine RPV Upper Vessel Shell-to-Flange Welds using ASME Code, Section XI, Appendix VIII, Supplements 4 and 6 in lieu of the ASME Code requirements.

- a. Provide the identification numbers for the RPV Upper Vessel Shell-to-Flange welds.*
- b. Provide drawings of the RPV Upper Vessel Shell-to-Flange welds.*

FPLE-PB Response Question 2

- a. The weld identification numbers for the PBNP RPV shell-to-flange welds are RPV-14-683 for each unit.
- b. See Drawing 2 in Enclosure 2.

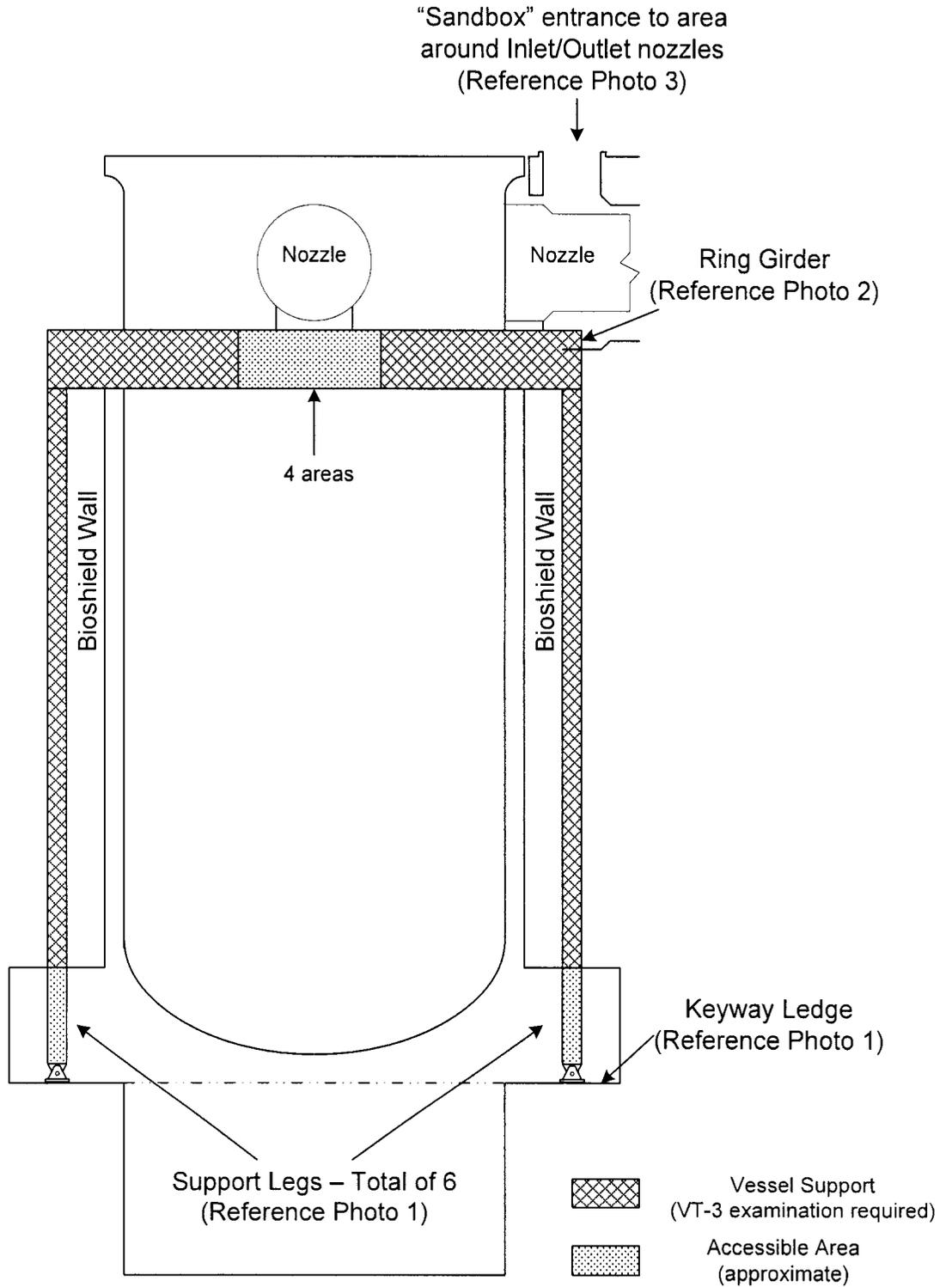
ENCLOSURE 2

**FPL ENERGY POINT BEACH
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2**

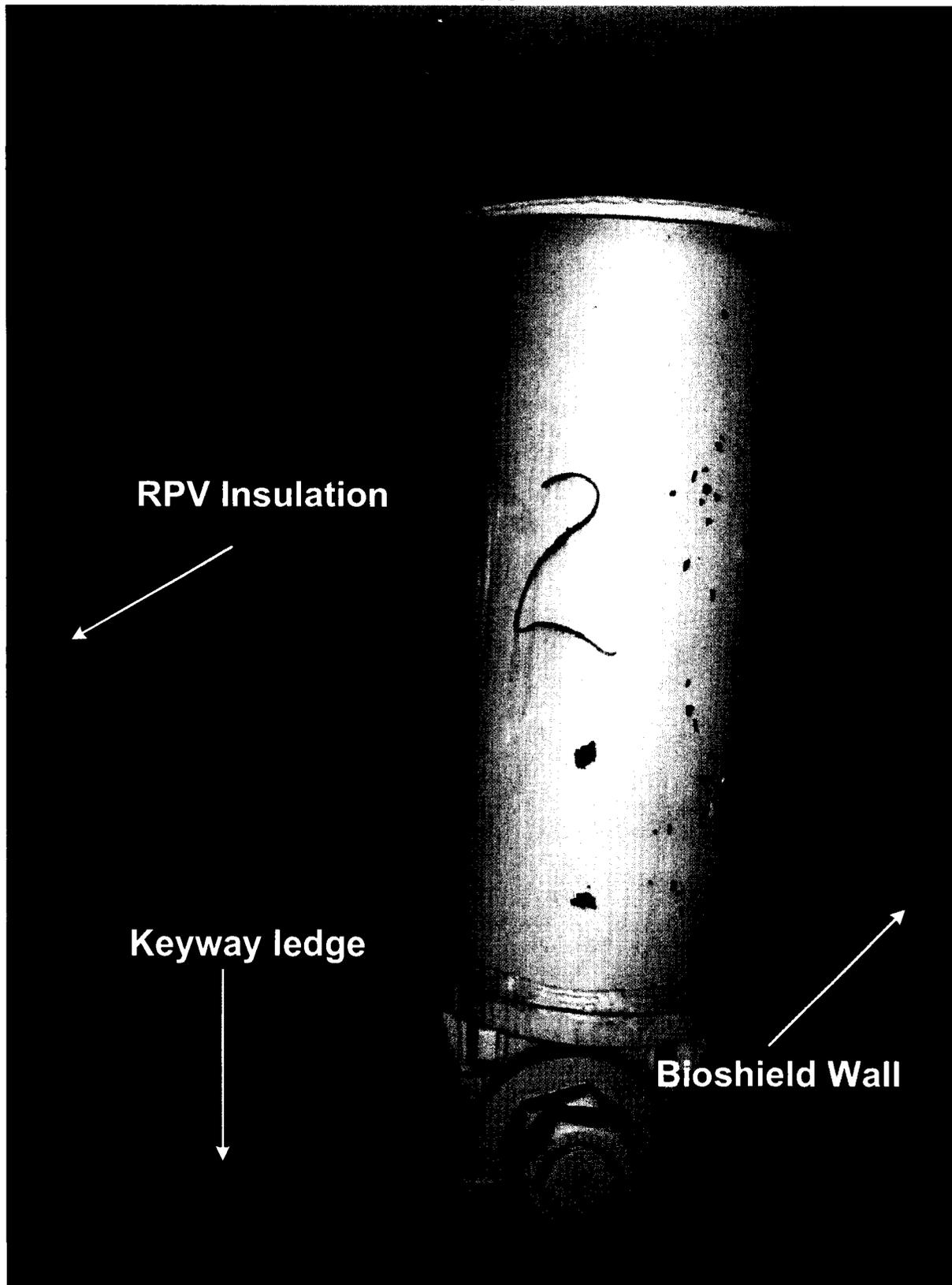
**RELIEF REQUESTS RR-19 AND RR-20 ASSOCIATED WITH
EXAMINATION OF THE REACTOR PRESSURE VESSELS
FOURTH TEN-YEAR INSERVICE INSPECTION PROGRAM INTERVAL**

**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
DRAWINGS AND PHOTOS**

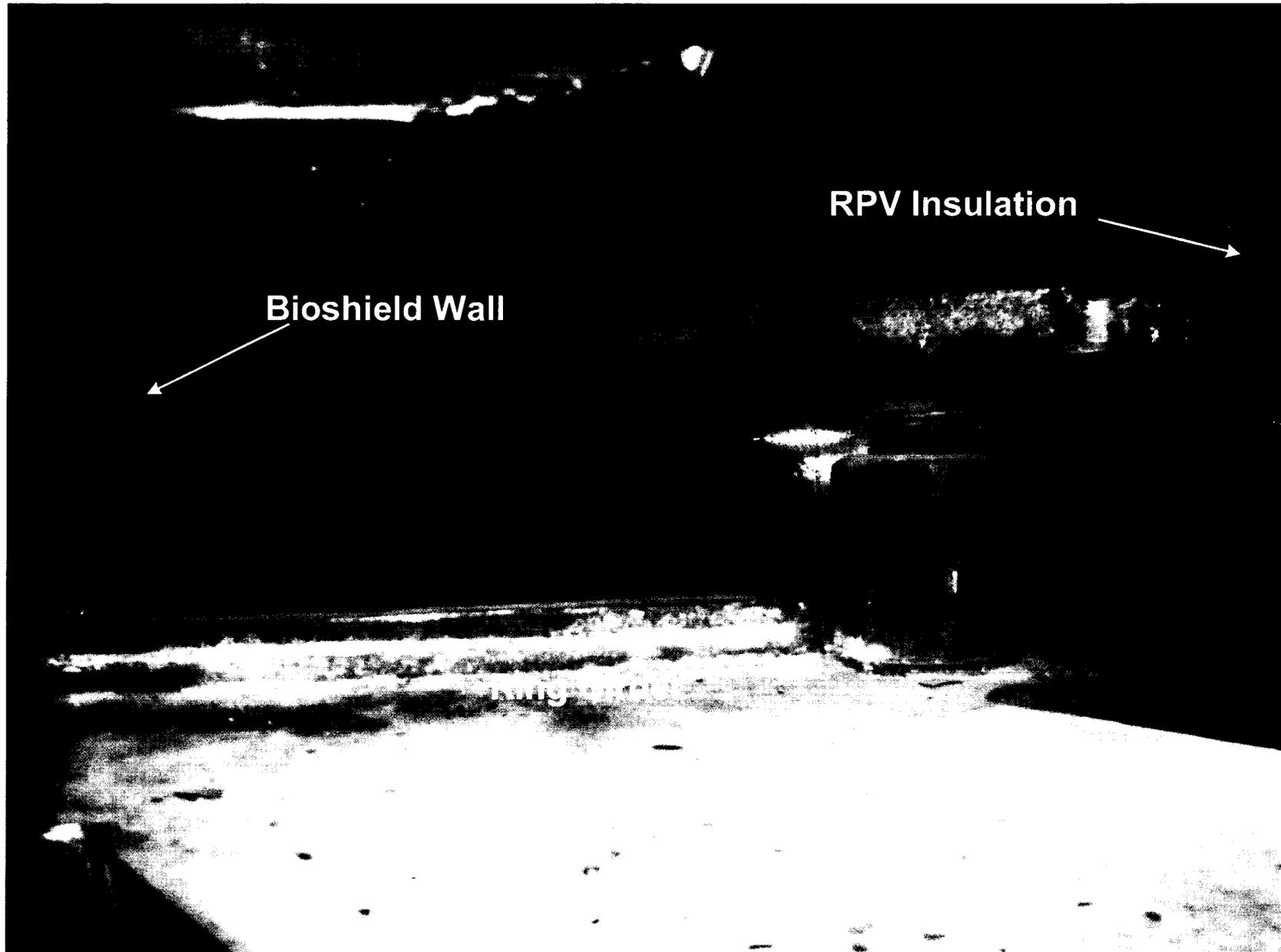
Drawing 1
Point Beach Nuclear Plant, Unit 1 and 2
RPV Support Configuration
NOT TO SCALE



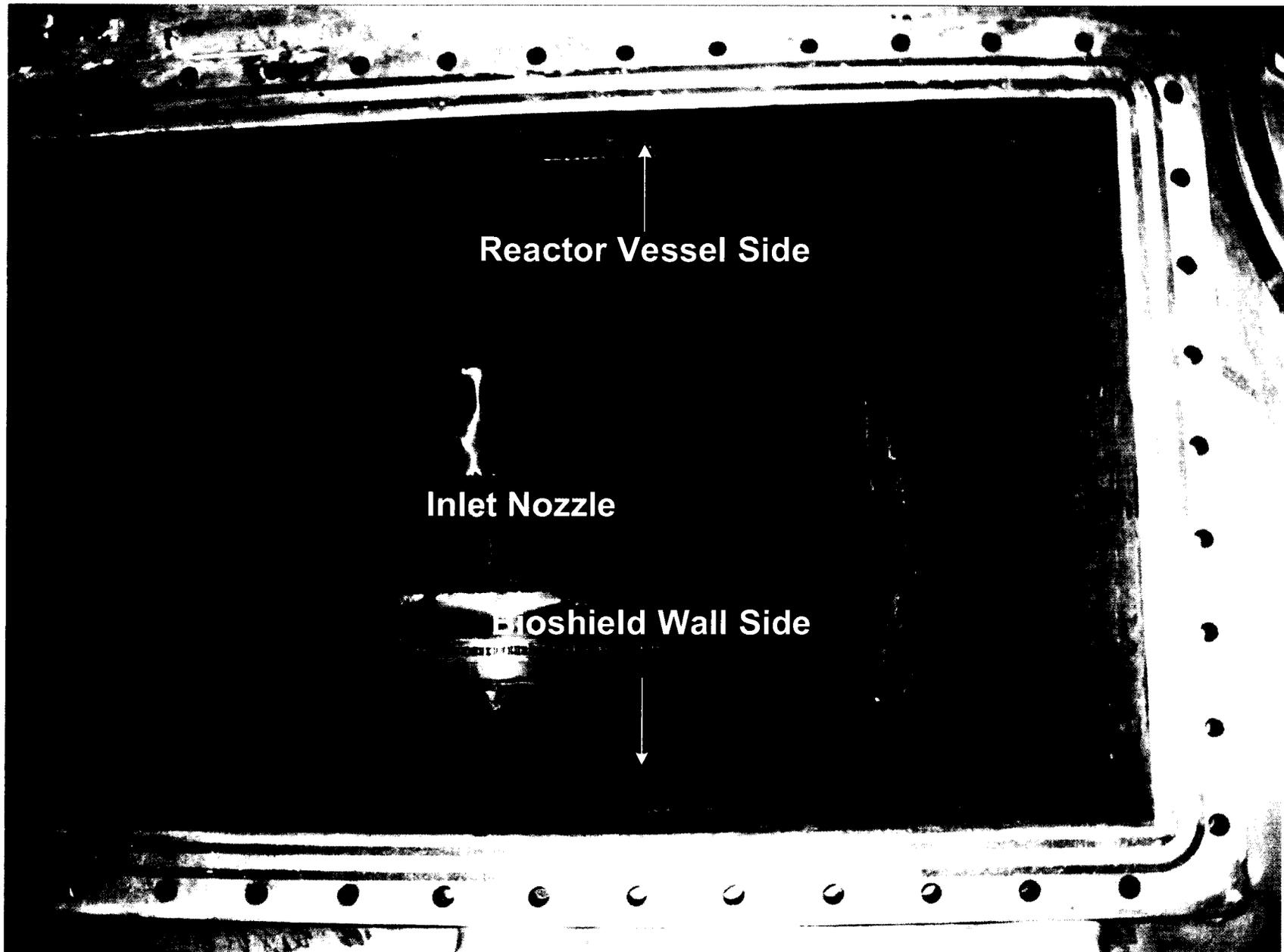
Point Beach Nuclear Plant, Units 1 and 2
RPV Support Configuration
Photo 1



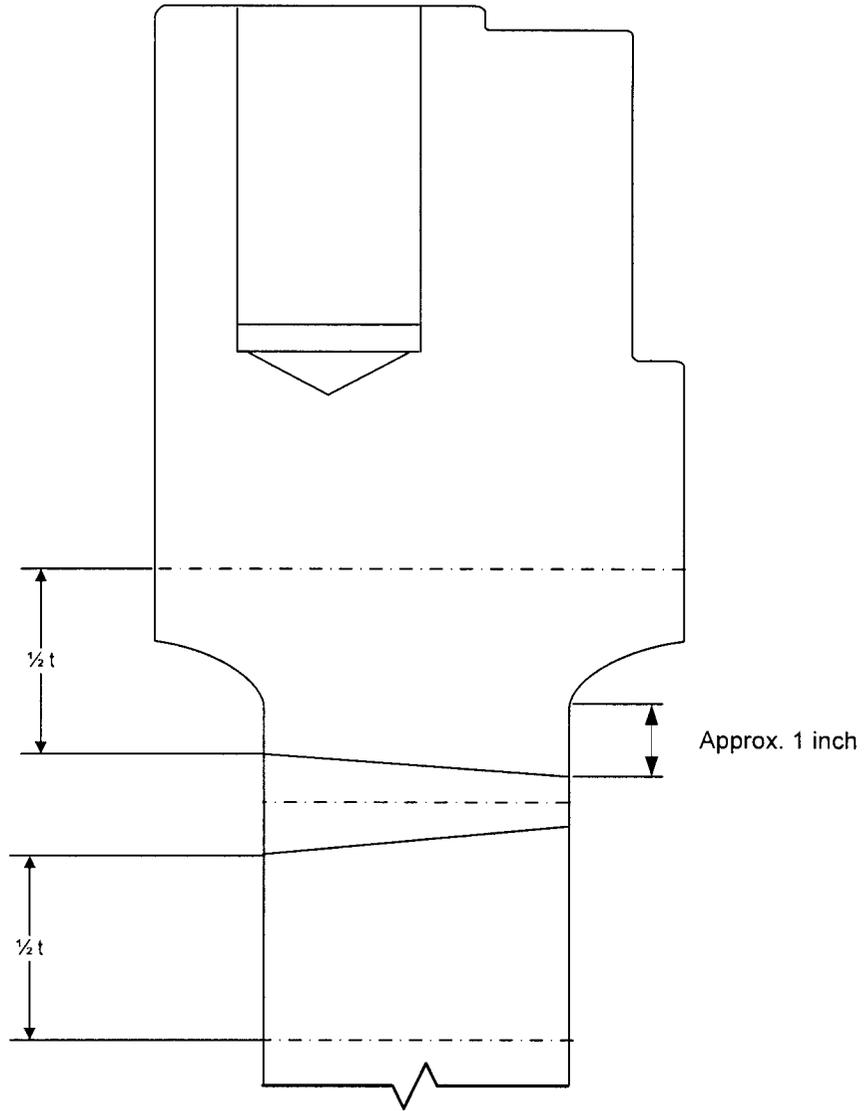
Point Beach Nuclear Plant, Units 1 and 2
RPV Support Configuration
Photo 2



Point Beach Nuclear Plant, Units 1 and 2
RPV Support and Inlet/Outlet Nozzle Access (Sandbox)
Photo 3



Drawing 2
Point Beach Nuclear Plant, Units 1 and 2
RPV Upper Shell to Flange Configuration
NOT TO SCALE



ENCLOSURE 3

FPL ENERGY POINT BEACH POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

RELIEF REQUEST RR-20 REQUEST FOR RELIEF TO USE ASME SECTION XI, APPENDIX VIII AND PERFORMANCE DEMONSTRATION INITIATIVE (PDI) FOR REACTOR VESSEL FLANGE

ASME Code Components Affected

Point Beach Nuclear Plant (PBNP) Units 1 and 2

Reactor Pressure Vessel (RPV) Upper Vessel Shell-to-Flange Welds.

Applicable Code Edition and Addenda

The ISI program is based on the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, 1998 Edition with 2000 Addenda.

Applicable Code Requirements

ASME Code Class I Reactor Pressure Vessel (RPV) Upper Vessel Shell-to-Flange Welds, Table IWB-2500-1 Category B-A, Item Number B1.30 requires an ultrasonic examination of the RPV shell-to-flange weld. In accordance with ASME Section XI, paragraph IWA-2232, "Ultrasonic examinations shall be conducted in accordance with Appendix I." Further, in accordance with Appendix I, Paragraph I-2110(b), "Ultrasonic examination of reactor vessel-to-flange welds, closure head-to-flange welds, and integral attachment welds shall be conducted in accordance with Article 4 of Section V, except that alternative examination beam angles may be used."

Reason for Request

Performance of ultrasonic (UT) examinations which have been qualified through the ASME Section XI, Appendix VIII/Performance Demonstration Initiative (PDI) process provides a superior examination compared to ASME Section V, Article 4 examinations. The proposed alternative represents the best techniques, procedures, and qualifications available to perform UT of RPV welds.

The RPV examination vendor reviewed PBNP drawings and has estimated about 60 percent coverage will be obtained on welds RPV-14-683. This is due to the configuration of the flange forging and its proximity to the weld (see Drawing 2 in Enclosure 2). The design of the flange forging is such that there are both inside and outside surface tapers that interfere with placement of remote examination modules. In addition, the outside surface of the RPV is inaccessible due to its placement inside the biological-shield wall (Photos 2 and 3 in Enclosure 2). The RPV examination vendor will perform examinations designed to achieve the maximum coverage possible utilizing PDI qualified procedures and personnel.

Proposed Alternative and Basis for Use

The listed weld is the only circumferential shell welds in the respective RPV that is not examined in accordance with the requirements of ASME Section XI, Appendix VIII, as mandated in 10 CFR 50.55a with the issuance of the rule change contained in Federal Register 64 FR 51370, dated September 22, 1999. This rule change mandated the use of ASME Section XI, Appendix VIII, Supplements 4 and 6 for the conduct of all other RPV weld examinations.

ASME Section V, Article 4, describes the required techniques to be used for the ultrasonic test (UT) of welds in ferritic pressure vessels with wall thicknesses greater than 2 inches. The techniques were first published in ASME Section V in the 1974 Edition, Summer 1975 Addenda. The calibration techniques, recording criteria and flaw sizing methods are based upon the use of a distance-amplitude-correction curve (DAC) derived from machined reflectors in a basic calibration block.

UT performed in accordance with Regulatory Guide 1.150, "Ultrasonic Testing of Reactor Vessel Welds During Preservice and Inservice Examinations," Revision 1 and Section V, Article 4, used recording thresholds of 50 percent DAC for the outer 75 percent of the required examination volume and 20 percent DAC from the clad/base metal interface to the inner 25 percent region of the examination volume. Indications detected in the designated exam volume portions, with amplitudes below these thresholds, were therefore not required to be recorded. Use of the Appendix VIII (PDI) processes would enhance the quality of the examination results reported. The detection sensitivity is more conservative and the procedure requires the examiner to evaluate all indications determined to be flaws regardless of their associated amplitude. The recording thresholds in Section V, Article 4, of the guidelines of Regulatory Guide 1.150, Revision 1 are generic and do not take into consideration such factors as flaw orientation, which can influence the amplitude of UT responses.

EPRI Report NP-6273, "Accuracy of Ultrasonic Flaw Sizing Techniques for Reactor Pressure Vessels," dated March 1989, established that UT flaw sizing techniques based on tip diffraction are the most accurate. The qualified prescriptive-based UT procedures of ASME Section V, Article 4 have been applied in a controlled process with mockups of RPVs which contained real flaws and the results statistically analyzed according to the screening criteria in Appendix VIII of ASME Section XI. The results show that the procedures in Section V, Article 4, are less effective in detecting flaws than procedures qualified in accordance with Appendix VIII as administered by the PDI processes. Appendix VIII/PDI qualification procedures use the tip diffraction techniques for flaw sizing. The proposed alternative Appendix VIII/PDI UT methodology uses analysis tools based upon echo dynamic motion and tip diffraction criteria which have been validated. This methodology is considered more sensitive and accurate than the Section V, Article 4 processes.

UT performed in accordance with the Section V, Article 4 processes requires the use of beam angles of 0°, 45°, and 60° with recording criteria that precipitates equipment changes. Having to perform these process changes results in increased radiation exposure for examination personnel. Using these examination processes, personnel must examine the weld manually from the seal surface during reactor pressure vessel (RPV) head lift activities to achieve the maximum coverage of the weld(s). Compliance with the specific ASME Section XI, Appendix I requirements for the RPV circumferential

shell-to-flange weld when the data is obtained using a less technically advanced process, results in an examination that does not provide a compensating increase in quality and safety for the higher personnel exposures incurred.

Relief was previously requested for weld RPV-14-683 for both Unit 1 and Unit 2 on March 3, 1999, via Relief Requests 1-19 and 2-25. A Safety Evaluation from the NRC dated January 28, 2000, approved Relief Requests 1-19 and 2-25 (ML003677847). The expected coverage for the upcoming inspection of weld RPV-14-683 is consistent with the coverage approved in Relief Requests 1-19 and 2-25. Therefore, the use of PDI techniques to examine the available volume of the shell-to-flange weld will provide reasonable assurance of maintaining safety.

Procedures, equipment and personnel qualified via the Appendix VIII, Supplements 4 and 6 PDI programs have been demonstrated to have a high probability of detection of flaws and are generally considered superior to the techniques employed earlier for RPV examinations. Accordingly, approval of this alternative evaluation process is requested pursuant to 10 CFR 50.55a(a)(3)(i). Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is also being requested from the requirement for "essentially 100%" volumetric coverage of RPV-14-683, upper vessel shell-to-flange welds.

Duration of Proposed Alternative

The duration of the proposed alternative is for the Fourth Ten-Year ISI interval, which ends on June 30, 2012.

Precedents

1. NRC Safety Evaluation dated January 28, 2000, for Point Beach Nuclear Plant, Units 1 and 2; "Point Beach Nuclear Plant, Units 1 and 2 - Safety Evaluation Regarding Relief Requests Associated with the Third 10-Year Inservice Inspection (ISI) Interval (TAC Nos. MA5234 and MA5235)" (ML003677847)
2. Duke Energy Corporation submittal for Catawba Nuclear Station, Units 1 and 2; McGuire Nuclear Station, Unit 2, and Oconee Nuclear Station, Unit 3, dated July 14, 2004, "Request for Relief for Use of an Alternate to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI, for Reactor Vessel Examinations RR-04-GO-002"
3. NRC Safety Evaluation dated October 20, 2004, for Catawba Nuclear Station, Units 1 and 2; McGuire Nuclear Station, Unit 2, and Oconee Nuclear Station, Unit 3, dated July 14, 2004, "Request for Relief for Use of an Alternate to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI, for Reactor Vessel Examinations RR-04-GO-002 (TAC Nos. MC3804, MC3805, MC3807, and MC3810)" (ML420040261)
4. Tennessee Valley Authority Submittal dated February 23, 2005, for Browns Ferry Units 1, 2 and 3; Sequoyah Nuclear Plant, Units 1 and 2; and Watts Bar Unit 1, "Relief Request to Use ASME Section XI, Appendix VIII and Performance Demonstration Initiative (PDI) for Reactor Vessel Flange Welds - PDI-4" (ML050590046)

5. NRC Safety Evaluation dated August 2, 2005, for Browns Ferry Units 1, 2 and 3; Sequoyah Nuclear Plant Units 1 and 2; and Watts Bar Nuclear Plant Unit 1, "Inservice Inspection Program Relief Request PDI-4 (TAC Nos. MC6232, MC6233, MC6234, MC6235, MC6236, and MC6237)" (ML051730487)

References

- ASME Section XI, 1998 Edition with Addenda through 2000
- Performance Demonstration Initiative (PDI) Program Description, Revision 4