

TECHNICAL LETTER REPORT
REQUEST FOR ADDITIONAL INFORMATION
ON THE THIRD 10-YEAR INSERVICE INSPECTION INTERVAL
REQUESTS FOR RELIEF 09-001-II, 09-002-II, and 09-003-II
FOR
FLORIDA POWER CORPORATION
CRYSTAL RIVER NUCLEAR POWER PLANT, UNIT 3
DOCKET NUMBER: 50-302

1. SCOPE

By letter dated March 20, 2009, the licensee, Florida Power Corporation (FPC), submitted Requests for Relief (RR) 09-001-II, 09-002-II, and 09-003-II, from the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, for Crystal River Nuclear Power Plant, Unit 3 (Crystal River). Additionally, the licensee resubmitted RR 09-003-II, Revision 1 in a letter dated May 28, 2009, to clarify the appropriate Title 10 of *Code of Federal Regulations* (10 CFR) reference for submitting relief requests under the basis of impracticality. The requests for relief are for the third 10-year inservice inspection (ISI) interval, in which the licensee adopted the 1989 Edition of ASME Code Section XI, No Addenda, as the Code of record.

In accordance with 10 CFR 50.55a(g)(5)(iii) of, the licensee has submitted the subject requests for relief for limited examinations in multiple ASME Code examination categories. The ASME Code requires that 100% of the examination volumes, or surface areas, described in Tables IWB-2500 and IWC-2500 be performed during each interval. The licensee stated that 100% of the ASME Code-required volumes, or surface areas, are impractical to obtain at Crystal River.

10 CFR 50.55a(g)(5)(iii) states that when licensees determine that conformance with ASME Code requirements is impractical at their facility, they shall submit information to support this determination. The Nuclear Regulatory Commission (NRC) will evaluate such requests based on impracticality, and may impose alternatives, giving due consideration to public safety and the burden imposed on the licensee.

The NRC staff has reviewed the information submitted by the licensee, and based on this review, determined the following information is required to complete the evaluation.

2. REQUEST FOR ADDITIONAL INFORMATION

2.1 Request for Relief 09-001-II, Part A, Examination Category B-D, Items B3.110, B3.120, B3.130, and B3.140, Full Penetration Welded Nozzles in Vessels

2.1.1 In Attachment A of Enclosure 1, the licensee has included multiple sketches and tables with volume coverage percentages for different angle beam orientations on steam generator and pressurizer nozzle-to-vessel welds and inner radius sections. However, in many of the sketches, it is unclear which portions, and how much of the ASME Code-required volumes have been completed. Please clearly describe or provide drawings

showing volume coverage for each of the ultrasonic angles applied. Include dimensions, scanning directions and ultrasonic techniques (longitudinal or shear wave) used. In addition, list the base and weld materials. As applicable, describe NDE equipment (ultrasonic scanning apparatus), details of the listed obstructions (size, shape, proximity to the weld, etc.) to demonstrate accessibility limitations, and discuss whether alternative methods or advanced technologies could be employed to maximize ASME Code coverage.

2.2 Request for Relief 09-001-II, Part B, Examination Category B-J, Items B9.21, Pressure Retaining Circumferential Welds in Piping Less than 4 NPS, and Part D, Examination Category R-A, Item R1.20, Risk Informed Piping Examinations

The licensee has not provided sufficient information to support the bases for impracticality for each of the Examination Category B-J and R-A piping welds in RR 09-001-II. Only general statements regarding geometries and access restrictions are provided, such as the following:

The ultrasonic examination of the above pipe welds was limited in coverage due to component configuration and/or immovable physical barriers. It is not possible to perform the ultrasonic examination from both sides of the weld since one side of the weld was not suitable for scanning based on the scanning surface angle of the component.

- 2.2.1 Provide further information to support the basis for each limited Examination Category B-J and R-A weld, and therefore, demonstrate impracticality. This information should include detailed descriptions with sufficient explanation (for clarification it may refer to the enclosed lay-out or cross-sectional drawings/sketches) to enable the staff to fully understand the causes of ultrasonic scan limitations and their impact on examination volume coverage.
- 2.2.2 Describe the ultrasonic techniques (shear wave and angles, and refracted L-wave and angles) applied to maximize coverage when examining from a single side of these welds.
- 2.2.3 In addition to the bases for impracticality, state whether any outside diameter surface feature, such as weld crown, diametrical weld shrinkage, or surface roughness conditions caused limited volumetric coverage during the subject piping weld examinations. Discuss the efforts that were used to correct these conditions.
- 2.2.4 Confirm that ASME Code-required surface examinations were completed for the subject welds, as applicable.
- 2.3 Request for Relief 09-001-II, Part C, Examination Category B-M-1, Item B12.40, Valve Body Welds NPS 4 or Larger
- 2.3.1 The licensee has not provided sufficient information to enable the staff to determine whether the subject valve body weld is inaccessible for volumetric examination. The licensee stated that the ultrasonic examination of the DHV-3 valve body weld would

require disassembly of the valve to access the weld, however the drawings submitted in Attachment A of Enclosure 1 do not adequately display this weld, nor fully show access limitations. In addition, the provided drawings are unclear and difficult to read. Please submit clear diagrams/sketches of the valve and location of the subject weld, showing access restrictions that make disassembly of the valve necessary for volumetric examination.

2.4 Request for Relief 09-002-II, Parts A and B, Examination Category C-A and C-B, Items C1.10 and C2.21, Pressure Retaining Welds in Pressure Vessels and Nozzle-to-Shell Welds

2.4.1 The coverage sketches included in the licensee's submittal do not contain dimensions and are not adequate to demonstrate impracticality for the subject volumetric examinations. Please clearly describe ASME Code-required volumes and areas of completed coverage (including dimensions) that for clarification refers to the cross-sectional sketches. Summarize scanning directions and techniques used. In addition, list the base and weld materials, if not already provided. As applicable, describe NDE equipment (ultrasonic scanning apparatus), details of the listed obstructions (size, shape, proximity to the weld, etc.) to demonstrate accessibility limitations, and discuss whether alternative methods or advanced technologies could be employed to maximize ASME Code coverage.

2.4.2 The description associated with Examination Categories C-A and C-B list the component type (shell-to-flange weld, nozzle-to-shell weld), however, it is not clear what the actual components are, or what systems are involved. Please state the component(s) for the subject welds and to what system these components are assigned.

2.4.3 Also, identify whether 100 percent of the ASME Code required surface examinations were completed, as applicable, and if any indications were detected.

2.5 Request for Relief 09-002-II, Part C, Examination Category C-F-1, Items C5.11, C5.21, and Augmented 7.1, Pressure Retaining Circumferential Welds in Austenitic Stainless Steel of High Alloy Piping, and Part D, Examination Category C-F-2, Items C5.51, Pressure Retaining Circumferential Welds in Carbon or Low Alloy Steel

The licensee has not provided sufficient information to support the bases for impracticality for each of the Examination Category C-F-1 and C-F-2 piping welds in RR 09-002-II. Only general statements regarding geometries and access restrictions are provided, such as the following:

The ultrasonic examination of the above pipe welds was limited in coverage due to component configuration and/or immovable physical barriers. It is not possible to perform the ultrasonic examination from both sides of the weld since one side of the weld was not suitable for scanning based on the scanning surface angle of the component.

2.5.1 Provide further information to support the basis for each limited Examination Category C-F-1 and C-F-2 weld, and therefore, demonstrate impracticality. This information

should include detailed descriptions (with sufficient explanation which may refer to the lay-out or cross-sectional drawings/sketches) to enable the staff to fully understand the causes of ultrasonic scan limitations and their impact on examination volume coverage.

- 2.5.2 Describe the ultrasonic techniques (shear wave and angles, and refracted L-wave and angles) applied to maximize coverage when examining from a single side of these welds.
- 2.5.3 In addition to the bases for impracticality, state whether any outside diameter surface feature, such as weld crown, diametrical weld shrinkage, or surface roughness conditions caused limited volumetric coverage during the subject piping weld examinations. Discuss the efforts that were used to correct these conditions.
- 2.5.4 Confirm that ASME Code-required surface examinations were completed for the subject welds, as applicable.
- 2.6 Request for Relief 09-003-II, Part A, Examination Category B-A, Items B1.11 and B1.12, Reactor Pressure Vessel (RPV) Circumferential and Longitudinal Shell Welds
 - 2.6.1 In Attachment A and B of Enclosure 3, the licensee has included multiple sketches and tables with volumetric coverage percentages at different angle beam orientations and arrangements. However, the sketches included are of poor quality and generally unclear, and do not adequately demonstrate impracticality and volumetric coverage(s) achieved. Please clearly explain the limiting conditions and completed percentages of the ASME Code volumes examined. Include in your response the ultrasonic angles applied and include dimensions and scanning directions. Please submit and refer to the cross-sectional drawings, if needed for providing the above clarification. Also, discuss whether alternative methods or advanced technologies could be employed to maximize ASME Code coverage.
 - 2.6.2 Please report whether any indications were detected for the third ten-year ISI examination for the RPV nozzle belt intermediate shell Weld (B1.2.3).
- 2.7 Request for Relief 09-003-II, Part B, Examination Category B-D, Item B3.90, RPV Nozzle-to-Vessel Welds
 - 2.7.1 In Attachment B of Enclosure 3, the licensee has included several sketches and tables with volumetric coverage percentages at different angle beam orientations. However, the sketches included are of poor quality and generally unclear, and do not adequately demonstrate impracticality and volumetric coverage(s) achieved. Please clearly describe volume coverage for each of the ultrasonic angles applied, and include dimensions, materials for the base metal and weld, and scanning directions. Please submit and refer to the cross-sectional drawings, if needed for providing the above clarification. Also, discuss whether alternative methods or advanced technologies could be employed to maximize ASME Code coverage.