



Florida Power

CORPORATION
Crystal River Unit 3
Docket No. 50-302

November 25, 1996
3F1196-16

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555-0001

Subject: Inservice Inspection (ISI) Relief Request 96-001-II

Dear Sir:

Florida Power Corporation (FPC) is requesting review and approval of attached Relief Request 96-001-II. This Relief Request is submitted pursuant to 10 CFR 50.55a(3)(ii) to obtain approval for using ASME Code Case N-524. Although this code case has not been published in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability ASME Section XI, Division I", the NRC staff has approved its use at other nuclear stations. FPC believes that adequate basis is being provided in the attached Relief Request to obtain its approval. The information provided includes the component for which relief is requested, the current code requirement and request for relief, the proposed alternate examination, the basis for relief, and the implementation schedule.

FPC requests that relief be granted by March 14, 1997 because the second inservice inspection (ISI) interval is currently scheduled to end on that date.

Sincerely,

P. M. Beard, Jr.
Senior Vice President
Nuclear Operations

OMB/LVC

Attachments

xc: Regional Administrator, Region II
Senior Resident Inspector
NRR Project Manager

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FLORIDA POWER CORPORATION
CRYSTAL RIVER UNIT 3
INSERVICE INSPECTION
RELIEF REQUEST # 96-001-II
SECOND TEN-YEAR INTERVAL

REFERENCE CODE: ASME Boiler and Pressure Vessel Code, Section XI,
1983 Edition through Summer 1983 Addenda.

I. System/Component(s) for Which Relief is Requested:

A complete listing of the affected welds is contained in the Crystal River Unit 3 ASME Section XI 10-Year Inservice Inspection Program for the second ISI interval.

a) Name of component:

Longitudinal piping welds specified in Table IWB-2500-1, Examination Category B-J and Table IWC-2500-1, Examination Category C-F.

b) Function:

These welds provide pressure boundary integrity in ASME Section III Class 1 and Class 2 piping components.

c) ASME Section III Code Class:

Class 1 and Class 2

d) Category:

Examination Category B-J, Pressure Retaining Welds in Piping (Class 1); Items No. B9.12 and B9.22

Examination Category C-F, Pressure Retaining Welds in Piping (Class 2); Items No. C5.12, C5.22, and C5.32

II. Current Code Requirement and Relief Request:

- a) ASME Section XI 1983 Edition, Table IWB-2500-1, Examination Category B-J requires examination (surface and volumetric for piping ≥ 4 inches in diameter and surface only for piping < 4 inches in diameter) of at least one pipe diameter length but not more than 12 inches of each longitudinal weld in piping intersecting circumferential piping welds required to be examined by Examination Categories B-F and B-J.

Current Code Requirement and Relief Request: (continued)

- b) ASME Section XI 1983 Edition, Table IWC-2500-1, Examination Category C-F, Item C5.22 requires surface and volumetric examination for piping $> 1/2$ inch nominal wall thickness. Category C-F, item C5.12 requires surface examination only for piping $\leq 1/2$ inch nominal wall thickness and Item C5.32 requires surface examination of pipe branch connections > 4 inches in diameter branch pipe size. The extent of examination includes at least the length of longitudinal welds equal to $2.5t$, at the intersection of the circumferential weld, where "t" is a measure of the pressure boundary thickness.

Relief is requested from performing the Code-required examination for longitudinal welds in Class 1 and 2 piping. FPC is proposing to adopt the extent of examination for longitudinal welds in Categories B-J and C-F defined by Code Case N-524.

III.

Alternate Examination:

The following alternative examination requirements will be performed as defined in ASME Section XI Code Case N-524:

- a) When only a surface examination is required, examination of longitudinal piping welds is not required beyond those portions of the welds within the examination boundaries of intersecting circumferential welds.
- b) When both surface and volumetric examinations are required, examination of longitudinal piping welds is not required beyond those portions of the welds within the examination boundaries of intersecting circumferential welds provided the following requirements are met:
 - 1) Where longitudinal welds are specified and locations are known, examination requirements shall be met for both transverse and parallel flaws at the intersection of the welds and for that length of longitudinal weld within the circumferential weld examination volume;
 - 2) Where longitudinal welds are specified but locations are unknown, or the existence of longitudinal welds is uncertain, the examination requirements shall be met for both transverse and parallel flaws within the entire examination volume of intersecting circumferential welds.

IV. Basis for Relief:

- a) Florida Power Corporation is requesting relief from the above stated requirements based on ASME Section XI Code Case N-524 which has been issued by the American Society of Mechanical Engineers and has been included in the 1995 Addenda of Section XI. Code Case N-524 defines alternative examination requirements that may be applied to surface and volumetric examination of longitudinal welds in Class 1 and Class 2 piping.
- b) Code Case N-524 directs examination efforts at the high risk area at weld intersections. By eliminating the low risk areas of longitudinal welds from examination, the time requirements and radiation exposure of personnel are significantly reduced. The expected dose savings is estimated to be 1.6 to 2.0 man-Rem per weld with a projected outage savings of 12.8 to 16.0 man-Rem based on examination of eight longitudinal welds. Compliance with the existing ASME Section XI requirements, in lieu of Code Case N-524, would result in unnecessary exposure without a compensating increase in the level of quality or safety.
- c) Longitudinal welds are produced during pipe fabrication, as opposed to circumferential welds which are field produced. The ASME Code contains requirements for characteristics and performance of materials and components, and for examination of longitudinal piping welds during fabrication. Additionally, the ASME Code specifies the minimum chemical and physical properties of the material to ensure structural integrity of the longitudinal welds at the time of pipe fabrication.
- d) The preservice, and inservice examinations conducted during the first ISI interval provide assurance of longitudinal weld structural integrity for the service life of the plant to date.
- e) Experience within the United States reveals that ASME Code longitudinal welds have not experienced degradation warranting inservice examination beyond that required to meet the circumferential weld examination requirements. To date, no significant loading conditions or material degradation mechanisms have become evident that specifically relate to longitudinal seam welds in nuclear power plant piping. If degradation of a longitudinal weld was to occur, it is expected to be located at an intersection with a circumferential weld, which is inspected in accordance with Code Case N-524. Therefore, the health and safety of the public will continue to be maintained while implementing the alternative examination requirements of Code Case N-524.

V. Implementation Schedule:

The alternative examination requirements of ASME Code Case N-524 will be incorporated into Florida Power Corporation's Inservice Inspection Program when relief is granted and will be applicable until the end of Crystal River Unit 3's second ten-year interval.