



April 5, 1999

L-99-78
10 CFR 50.4
10 CFR 50.55a

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

RE: St. Lucie Unit 2
Docket No. 50-389
In-Service-Inspection Plan
Second Ten-Year Interval
Relief Request 25

Pursuant to 10 CFR 50.55a(a)(3); Florida Power and Light Company (FPL) requests approval of the enclosed Relief Request 25.

Relief Request 25 proposes to use the alternative requirements of ASME Code Case N-613 in lieu of the requirements of ASME Section XI Figures IWB-2500-7(a) and IWB-2500-7(b). In addition, the relief request proposes to use this Code Case in lieu of the requirements of ASME Section V, Article 4 for the performance of the required volumetric examinations as specified in Table IWB-2500-1 Category B-D of the 1989 Edition of ASME Section XI. FPL has determined pursuant to 10 CFR 50.55a(a)(3) that the proposed alternatives would provide an acceptable level of quality and safety, and that compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

NRC action is requested to be complete by August 1999 to support planning for the spring 2000 Unit 2 refueling outage (SL2-12). Please contact us if there are any questions about this submittal.

Very truly yours,

J. A. Stall
Vice President
St. Lucie Plant

Enclosure

JAS/GRM

cc: Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, St. Lucie Plant

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St. Lucie Unit 2
SECOND INSPECTION INTERVAL
RELIEF REQUEST NUMBER 25

A. COMPONENT IDENTIFICATION:

Class: 1 Reactor Pressure Vessel

Pressure-retaining Nozzle-to-Vessel welds examined at St. Lucie Unit 2.

B. EXAMINATION REQUIREMENT:

Rules for Inservice Inspection of Nuclear Power Plant Components, Section XI, 1989 Edition, Examination Category B-D Full Penetration Welds of Nozzles in Vessels. Code Item B3.90, Figure IWB-2500-7 (a) & (b).

ASME Section V, 1989 Edition, Article 4, Paragraphs; T-441.3.2.5 *Angle Beam Scanning*, T-3.2.6 *Scanning for Reflectors Oriented Parallel to the Weld*, and T-441.3.2.7 *Scanning for Reflectors Oriented Transverse to the Weld*.

C. RELIEF REQUESTED:

Pursuant to 10 CFR 50.55a (a)(3)(i), FPL requests to use the alternative requirements of Code Case N-613 in lieu of the requirements of ASME Section XI Figures IWB-2500-7 (a) and IWB-2500-7 (b).

We also request to use this Code Case in lieu of the requirements of ASME Section V, Article 4 for the performance of the required volumetric examinations as specified in Table IWB-2500-1 Category B-D of the 1989 Edition of ASME Section XI. These examinations will be performed during the second inspection interval.

D. BASIS FOR RELIEF:

FPL is currently required to perform Inservice Examinations of selected welds in accordance with the requirements of 10 CFR 50.55a, plant technical specifications, and the 1989 Edition of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components. This Code edition invokes the examination volume requirements of Figures IWB-2500-7 (a) and IWB-2500-7 (b). This Code edition also invokes the examination requirements of Appendix I, Article I-2000 which references ASME Section V, Article 4 that essentially prescribes twenty (20) year old examination methodology.

The examination volume for the Reactor vessel Nozzle-to-vessel welds extends far beyond the weld itself, and is unnecessarily large. This extends the time for examination significantly, and results in no net increase in safety, as the area being examined is simply a base metal region which is not prone to in-service cracking and has been extensively examined before the vessel was put into service and during the first in-service examination..

This Code Case also de-emphasizes the requirement to detect flaws perpendicular to the weld-base metal interface on the grounds that they never occur as a result of the welding process. Furthermore, the likelihood of inservice cracking with this orientation in these regions is very low, having never been observed.

St. Lucie Unit 2
SECOND INSPECTION INTERVAL
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The implementation of Code Case N-613 is also expected to reduce on-vessel examination time by as much as 12 hours, which translates to significant cost savings and reduced personnel radiation exposure.

E. ALTERNATIVE EXAMINATIONS:

- 1) Perform examinations in accordance with Code Case N-613
- 2) Conduct Mechanized Ultrasonic Examinations of 100 % of all welds to the extent practical using Performance Demonstration Initiative (PDI) ASME Section XI, Appendix VIII qualified procedures and personnel. This will be accomplished in accordance with Code Case N-622 (relief request No. 22).
- 3) Periodic System Pressure Tests per Category B-P, Table IWB-2500-1

F. IMPLEMENTATION SCHEDULE:

Second Inservice Inspection Interval

G. ATTACHMENTS TO THE RELIEF:

Code Case N-613

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

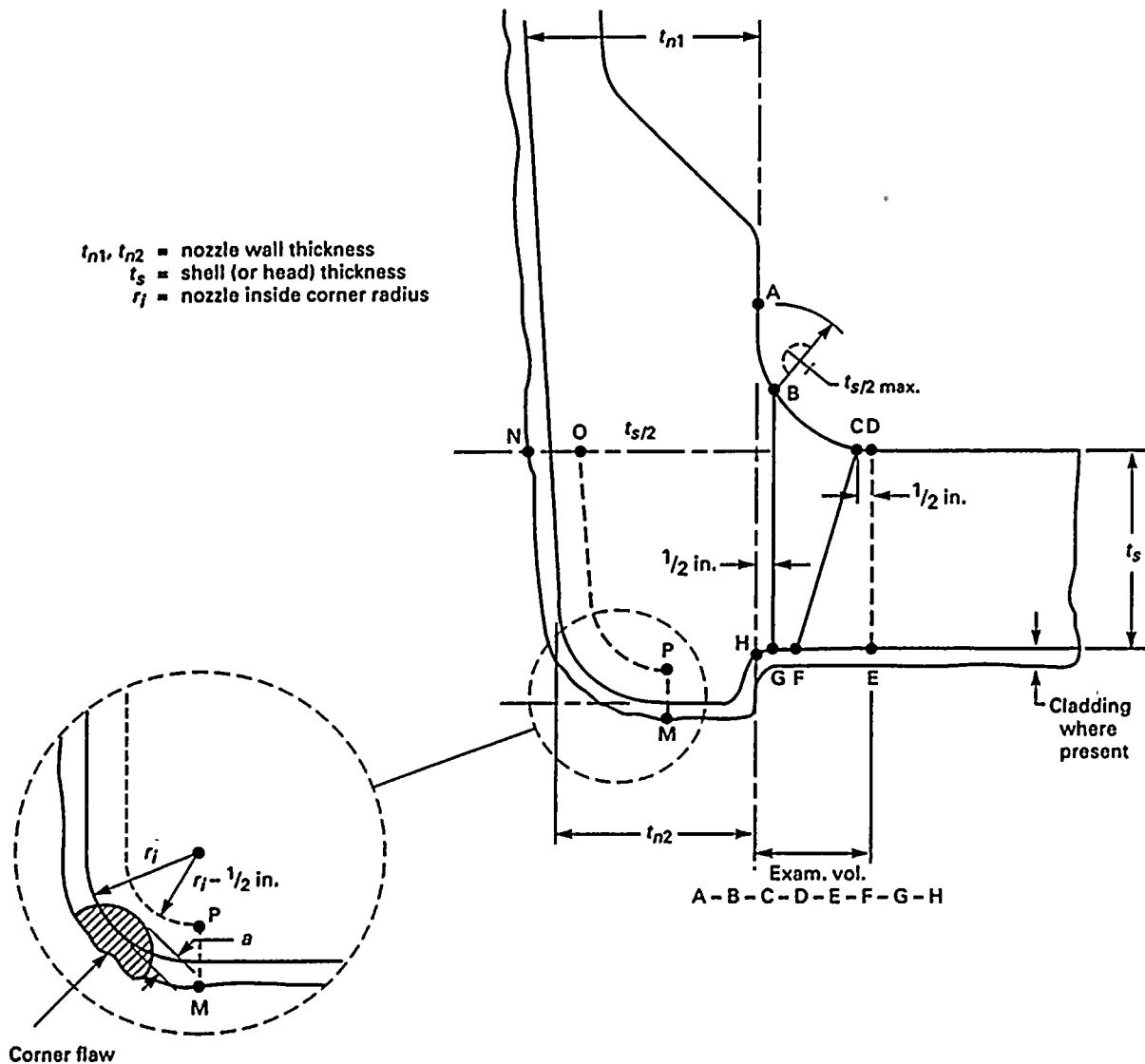
Approval Date: July 30, 1998
See *Numeric Index for expiration
and any reaffirmation dates.*

Case N-613
Ultrasonic Examination of Full Penetration
Nozzles in Vessels, Examination Category B-D,
Item No's. B3.10 and B3.90, Reactor Vessel-To-
Nozzle Welds, Fig. IWB-2500-7(a), (b), and (c)
Section XI, Division 1

Inquiry: What alternatives to the examination requirements of Section XI, Appendix I and Section V, Article 4 are permissible when performing ultrasonic examination of reactor vessel-to-nozzle welds?

Reply: It is the opinion of the Committee that ultrasonic examination of Category B-D nozzles may be conducted using techniques designed for detection and sizing of surface and subsurface flaws within the examination volume (A-B-C-D-E-F-G-H), oriented in a plane normal to the vessel inside surface and parallel to the weld for Figs. 1 and 2, and oriented in a plane normal to the nozzle inside surface and parallel to the weld for Fig. 3.

CASES OF ASME BOILER AND PRESSURE VESSEL CODE



EXAMINATION REGION [Note (1)]

- Shell (or head) adjoining region
- Attachment weld region
- Nozzle cylinder region
- Nozzle inside corner region

EXAMINATION VOLUME [Note (2)]

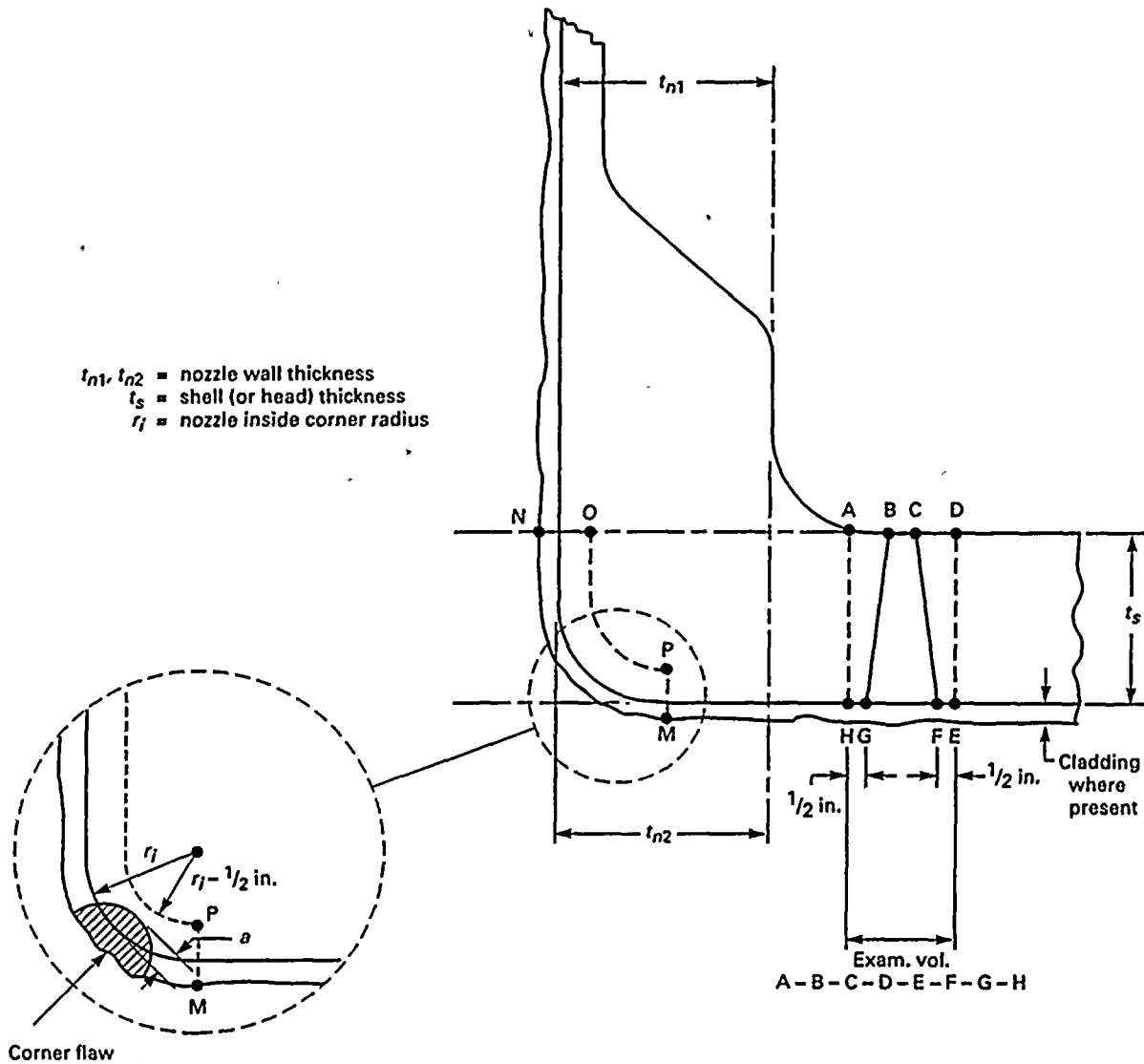
- C-D-E-F
- B-C-F-G
- A-B-G-H
- M-N-O-P

NOTES:

- (1) Examination regions are identified for the purpose of differentiating the acceptance standards in IWB-3512.
- (2) Examination volumes may be determined either by direct measurements on the component or by measurements based on design drawings.

FIG. 1 NOZZLE IN SHELL OR HEAD
 (Examination Zones in Barrel Type Nozzles Joined by Full Penetration Corner Welds)

CASES OF ASME BOILER AND PRESSURE VESSEL CODE



EXAMINATION REGION [Note (1)]

- Shell (or head) adjoining region
- Attachment weld region
- Nozzle cylinder region
- Nozzle inside corner region

EXAMINATION VOLUME [Note (2)]

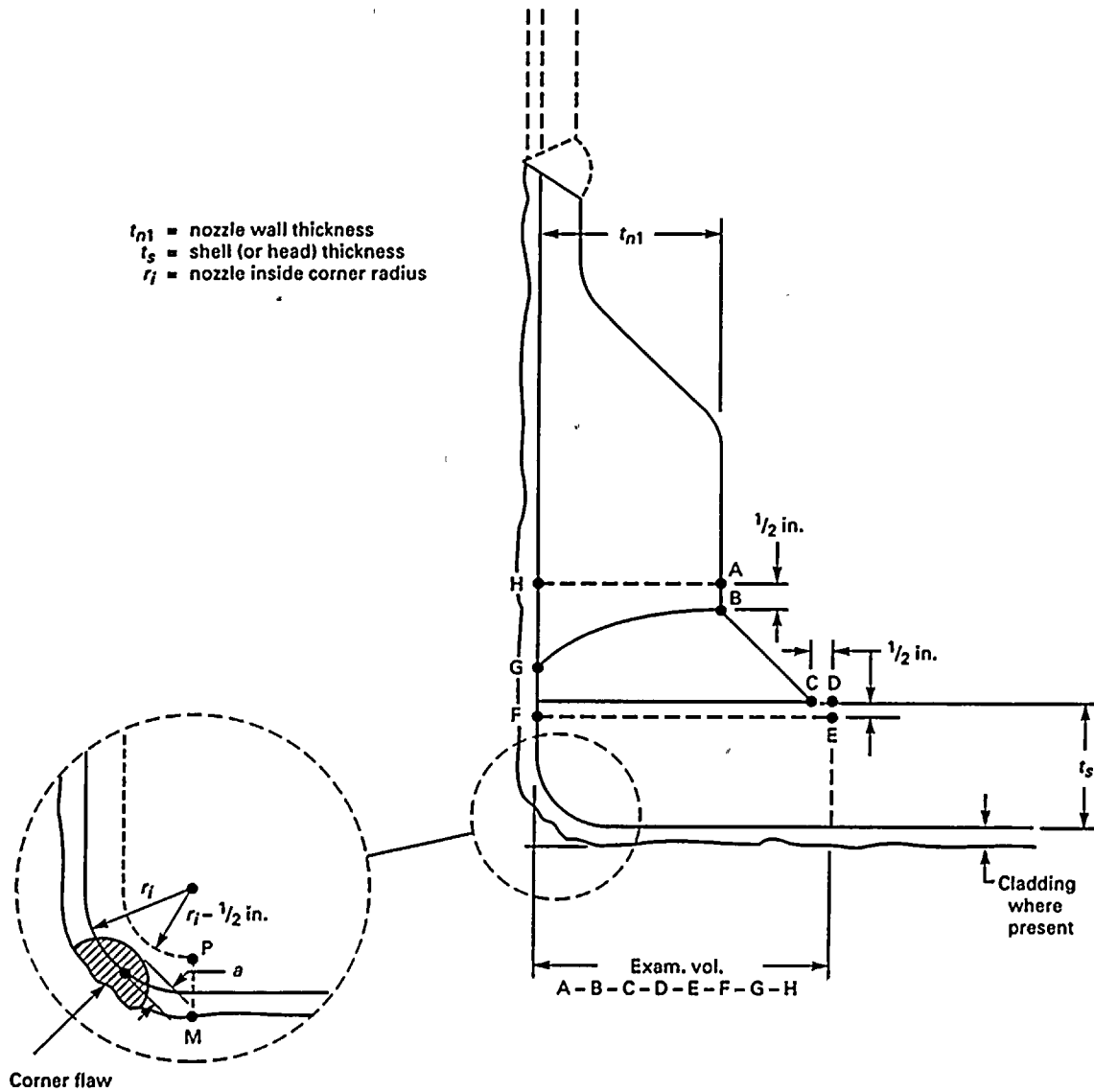
- C-D-E-F
- B-C-F-G
- A-B-G-H
- M-N-O-P

NOTES:

- (1) Examination regions are identified for the purpose of differentiating the acceptance standards in IWB-3512.
- (2) Examination volumes may be determined either by direct measurements on the component or by measurements based on design drawings.

FIG. 2 NOZZLE IN SHELL OR HEAD
 (Examination Zones in Flange Type Nozzles Joined by Full Penetration Butt Welds)

CASES OF ASME BOILER AND PRESSURE VESSEL CODE



t_{n1} = nozzle wall thickness
 t_s = shell (or head) thickness
 r_i = nozzle inside corner radius

EXAMINATION REGION (Note (1))

- Shell (or head) adjoining region
- Attachment weld region
- Nozzle cylinder region
- Nozzle inside corner region

EXAMINATION VOLUME (Note (2))

- C-D-E-F-G
- B-C-G
- A-B-G-H
- M-N-O-P

NOTES:

- (1) Examination regions are identified for the purpose of differentiating the acceptance standards in IWB-3512.
- (2) Examination volumes may be determined either by direct measurements on the component or by measurements based on design drawings.

FIG. 3 NOZZLE IN SHELL OR HEAD
 (Examination Zones in Set-On Type Nozzles Joined by Full Penetration Corner Welds)