Florida Power & Light Company, 6501 S. Ocean Drive, Jensen Beach, FL 34957

FPL

August 6, 2004

L-2004-180
10 CFR 50.4
10 CFR 50.55a

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

RE: St. Lucie Unit 2
Docket No. 50-389
In Service Inspection Plan
Closeout of Second Ten-Year Interval
Revised Relief Requests 1A and 10A

Pursuant to 10 CFR 50.55a (g)(6), Florida Power and Light Company (FPL) requests approval of revised Relief Requests 1A and 10A as part of the closeout of the second ten-year in service inspection (ISI) interval for St. Lucie Unit 2. FPL has determined pursuant to 10 CFR 50.55a (g)(5)(iii), that the examinations addressed in Relief Requests 1A and 10A were performed to the extent possible and provide an acceptable level of quality and safety.

The objective of Relief Request 1A (Attachment 1) is to resubmit the previously approved Relief Request No. 1. NRC letter dated May 4, 1995 (TAC M87208) approved the initial submittal of Relief Request No. 1. The previous submittal of the relief request was based upon the techniques utilized and the limitations encountered during the examination for the first 10-year ISI interval and detailed the anticipated examination volume coverage for the examinations performed during the second 10-year ISI interval examinations. This revision submits the examination volume coverage obtained during the second 10-year ISI interval inspection. Relief requests can only be granted for the interval in which they were submitted to the NRC because of the 10CFR50.55a requirement for licensees to update their ISI program every 120 months.

Examinations of reactor pressure vessel welds are performed to the maximum extent possible. Due to the configuration of the reactor vessel, it is impractical to meet the examination coverage requirements of the ASME Code, Section XI, 1989 Edition, No Addenda, as clarified by 10 CFR 50.55a(g)(6)(ii)(A)(2) and Code Case N-460. When examined, the welds listed within Relief Request No. 1A did not receive the required Code volume coverage due to their configuration and/or the presence of permanent attachments. These scanning limitations prohibit essentially 100% ultrasonic examination coverage of the required examination volume. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii). These areas were identified during the second 10-year ISI interval.

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Attachment 1 provides the details of the examination limitations by individual weld identification and description. The accompanying figures graphically depict the extent of the limitations identified during the second 10-year ISI examinations.

The objective of Relief Request 10A (Attachment 2) is to resubmit the previously approved Relief Request 10 for Class 2 piping welds that did not receive the required code volume. NRC letter dated May 4, 1995 (TAC No. M87208) approved the initial submittal of Relief Request 10. The previous submittal of the relief request was based upon the techniques utilized and the limitations encountered during the examination during the first 10-year ISI interval and detailed the anticipated examination volume coverage for the examinations performed during the second 10-year ISI interval examinations. This revision submits the Class 2 piping welds with examination volume coverage obtained that were below the minimum acceptable during the second 10-year ISI interval inspection. Relief requests can only be granted for the interval in which they were submitted to the NRC because of the 10 CFR 50.55a requirement for licensees to update their ISI program every 120 months.

Examinations of Class 2 piping welds are performed to the maximum extent possible. Due to configuration, it is impractical to meet the examination coverage requirements of the ASME Code, Section XI, 1989 Edition, No Addenda, as clarified by Code Case N-460. When examined, the welds listed within Relief Request 10A did not receive the required code volume coverage due to their configuration and/or the presence of permanent attachments. These scanning limitations prohibit essentially 100% ultrasonic examination coverage of the required examination volume. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii). These areas were identified during the second 10-year ISI interval.

Should you have any questions on this submittal, please contact George Madden at (772) 467-7155.

Very truly yours,

William Jefferson, Jr.
Vice President
St. Lucie Plant

WJ/GRM

Attachments (2)

**St. Lucie Unit 2**
**SECOND INSPECTION INTERVAL**
**RELIEF REQUEST NUMBER 1A (Revised)**

**Relief Request**
**In Accordance with 10 CFR50.55a(g)(5)(iii)**

--In Service Inspection Impracticality--

## 1. ASME Code Component(s) Affected

Class 1 pressure retaining welds in the reactor pressure vessel (RPV).

## 2. Applicable Code Edition and Addenda

The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Rules for In service Inspection of Nuclear Power Plant Components, Section XI, 1989 Edition, No Addenda.

## 3. Applicable Code Requirement

| Exam Cat. | Item No. | Examination Requirements |
|---|---|---|
| B-A | B1.10<br>B1.11<br>B1.12 | Essentially 100% volumetric examination of all longitudinal and circumferential shell welds (does not include shell to flange weld). |
| B-A | B1.20<br>B1.21<br>B1.22 | Essentially 100% volumetric examination of accessible length of circumferential and meridional head welds. |
| B-A | B1.30 | Essentially 100% volumetric examination of the shell to flange weld. |
| B-A | B1.40 | Essentially 100% volumetric and surface examination of head to flange weld |
| B-D | B3.90 | Essentially 100% volumetric examination of the nozzle to vessel welds |

As defined by 10 CFR 50.55a(g)(6)(ii)(A)(2) and ASME Code Case N-460, essentially 100% means more than 90% of the examination volume of each weld where reduction in coverage is due to interference by another component or part geometry.

## 4. Impracticality of Compliance

Due to the configuration of the Reactor Vessel, it is impractical to meet the examination coverage requirements of the ASME Code, Section XI, 1989 Edition, No Addenda, as clarified by Code Case N-460. Relief is requested in

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accordance with 10 CFR 50.55a(g)(5)(iii). These areas were found during the second 10-year in service inspection interval.

When examined, the welds listed within this request did not receive the required code volume coverage due to their configuration and/or the presence of permanent attachments. These scanning limitations prohibit essentially 100% ultrasonic examination coverage of the required examination volume.

Described below, coupled with figures, are details of the examination limitations by weld description. The accompanying figures graphically depict the extent of the limitations.

RPV Lower Head Meridional Welds (101-154-A through F)

Examination Category B-A, Item B1.22

The examination of the Figure IWB-2500-3 E-F-G-H volume is limited due to the proximity of the flow skirt and the flow skirt stop lugs. Access to approximately 42% of the examination volume is restricted. The remaining 58% of the examination volume was examined with techniques which have been qualified by demonstration in accordance with Supplements 4 & 6 of the 1995 Edition, 1996 Addenda of the ASME Code Section XI, Appendix VIII, using the Performance Demonstration Initiative Protocol. The welds were examined from both sides of the weld, scanning both parallel and perpendicular to the weld. These ultrasonic examinations did not reveal any recordable or reportable flaws in accordance with the ASME Code Section XI, 1989 Edition, No Addenda.

The mechanized scanning of the lower head meridional (peel segments) welds 101-154-A through F is limited due to interference from the core support lugs and flow skirt. Figure 1 is a roll out view showing vessel inside surface scan limitations and the location of the areas of incomplete weld volume coverage. Figure 2 provides an illustration of a typical meridional weld showing the weld volume limitation due to the flow skirt and flow skirt stop lugs.

RPV Circumferential Lower Shell-to-Lower Head Weld (201-141)

Examination Category B-A, Item B1.21

The examination of the Figure IWB-2500-3 A-B-C-D volume is limited due to the proximity of the core barrel stabilizing lugs, the flow skirt, and the flow skirt stop lugs. Access to approximately 20% of the examination volume is restricted. The remaining 80% of the examination volume was examined with techniques which have been qualified by demonstration in accordance with Supplements 4 & 6 of the 1995 Edition, 1996 Addenda of the ASME Code Section XI, Appendix

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VIII, using the Performance Demonstration Initiative Protocol. This weld was examined from both sides of the weld, scanning both parallel and perpendicular to the weld. The ultrasonic examination identified one IWB-3510 acceptable indication in accordance with the ASME Code Section XI, 1989 Edition, No Addenda acceptance criteria.

The mechanized scanning of the lower shell-to-lower head weld 201-141 is limited due to interference from the core barrel support lugs and antirotation lugs. Figure 1 is a roll out view showing vessel inside surface scan limitations and the location of areas of incomplete weld volume coverage. Figure 3 provides an illustration of the weld volume limitation due to the core barrel stabilizing lugs, the flow skirt and the flow skirt stop lugs.

RPV Intermediate Shell-to-Lower Shell Circumferential Weld (101-171)

Examination Category B-A, Item B1.11

The examination of the Figure IWB-2500-2 A-B-C-D volume is limited due to the surveillance capsule holders. Access to approximately 14% of the examination volume is restricted. The remaining 86% of the examination volume was examined with techniques which have been qualified by demonstration in accordance with Supplements 4 & 6 of the 1995 Edition, 1996 Addenda of the ASME Code Section XI, Appendix VIII, using the Performance Demonstration Initiative Protocol. This weld was examined from both sides of the weld, scanning both parallel and perpendicular. The ultrasonic examination did not reveal any recordable or reportable flaws in accordance with the ASME Code Section XI, 1989 Edition, No Addenda.

The mechanized scanning of the intermediate shell-to-lower shell weld 101-171 is limited due to interference from the surveillance specimens. Figure 1 is a roll out view showing vessel inside surface scan limitations and location of the areas of incomplete coverage due to the presence of the surveillance capsule holders.

RPV Upper Shell-to-Flange Weld (101-121)

Examination Category B-A, Item B1.30

The examination of the Figure IWB-2500-4 A-B-C-D volume is limited due to the ID taper and the outlet nozzles integral extensions. Access to approximately 25% of the examination volume is restricted. The remaining 75% of the examination volume was examined with ASME Code acceptable techniques. Additionally, the mechanized techniques employed for examination from the RPV inside have also been qualified by demonstration in accordance with

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Supplements 4 & 6 of the 1995 Edition, 1996 Addenda of the ASME Code Section XI, Appendix VIII, using the Performance Demonstration Initiative Protocol. This weld was examined from both sides of the weld, scanning both parallel and perpendicular. The ultrasonic examination did not reveal any recordable or reportable flaws in accordance with the ASME Code Section XI, 1989 Edition, No Addenda.

The upper shell-to-flange weld 101-121 is examined from the shell side and from the flange seal surface. The examination performed from the flange seal surface was not limited by configuration. Figure 1 is a roll out view of the vessel inside surface inside surface. It shows the scan limitations and the location of the areas of incomplete coverage to the mechanized scanning due to the presence of the internal taper. Figure 4 provides an illustration of the weld volume limitation to the shell side mechanized examination.

RPV Outlet Nozzles to Shell Welds (105-121-A & 105-121-B)

Examination Category B-D, Item B3.90

The examination of the Figure IWB-2500-7 A-B-C-D-E-F-G-H volume is limited when scanning parallel to the weld due to the integral extension. The examination was performed from the nozzle bore and the RPV inside shell wall. Access to approximately 35% of the examination volume is restricted. The remaining 65% of the examination volume was examined with ASME Code acceptable techniques. Additionally, the mechanized techniques employed for examination from inside the RPV have also been qualified by demonstration in accordance with Supplements 4 and 6 of the 1995 Edition, 1996 Addenda of the ASME Code Section XI, Appendix VIII, using the Performance Demonstration Initiative Protocol. The weld was examined from both sides of the weld, scanning both parallel and perpendicular to the weld. The ultrasonic examination did not reveal any recordable or reportable flaws in accordance with the ASME Code Section XI, 1989 Edition, No Addenda.

The mechanized scanning of the outlet nozzle-to-shell welds 105-121-A and B is performed from the shell side and from the nozzle bore. Figure 1 is a roll out view showing vessel inside surface scan limitations and the location of the areas of incomplete weld volume coverage due to the presence of the nozzle integral extension. Figure 5 provides an illustration of the shell side parallel scan weld volume limitation due to interference from the nozzle integral extension. The perpendicular scan examination was not limited by the configuration.

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RPV Closure Head (101-101)

Examination Category B-A, Item B1.40

The examination of the Figure IWB-2500-5 A-B-C-D volume is limited due to the shroud, shroud lugs and flange flex radius. The closure head-to-torus weld is examined by manually scanning from both sides, both parallel and perpendicular to the weld. Access to approximately 19% of the examination volume is restricted. The remaining 81% of the examination volume was examined with ASME Code acceptable techniques. The ultrasonic examination did not reveal any recordable or reportable flaws in accordance with the ASME Code Section XI, 1989 Edition, No Addenda. Figures 6, 7, and 8 provide an illustration of the weld volume limitations due to the weld configuration and location of the shroud and shroud attachment lugs.

**5. Burden Caused by Compliance**

It is not possible to obtain ultrasonic interrogation of greater than 90% of the required examination volume due to interference caused by configuration and/or permanent attachments. Examinations are performed to the maximum extent possible. The Ultrasonic (UT) techniques for each weld were reviewed to determine if additional coverage could be achieved. For the welds listed above, it was not possible to remove the obstruction without significant work, increased radiation exposure, and/or damage to the plant.

**6. Proposed Alternative and Basis for Use**

**Proposed Alternative**

1) Periodic system pressure tests in accordance with ASME Section XI Category B-P, Table IWB-2500-1.

2) Conduct ultrasonic examinations to the maximum extent possible.

**Basis**

FPL performed in service examinations of selected welds in accordance with the requirements of 10 CFR 50.55a, plant technical specifications, and the 1989 Edition, No Addenda, of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI. When a component has conditions which limit the examination volume, Florida Power and Light is required to submit the information to the enforcement and regulatory authorities having jurisdiction at the plant site. This Relief Request has been written to

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address areas where those types of conditions exist and the required amount of coverage was reduced below the minimum acceptable.

FPL performed mechanized ultrasonic examinations of the reactor vessel during the April/May 2000 refueling outage.

10 CFR 50.55a(g)(4) recognizes that throughout the service life of a nuclear power facility, components which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements set forth in the ASME Code to the extent practical within the limitations of design, geometry and materials of construction of the components.

By letter dated February 18, 1999, and supplemented May 24, 1999, FPL submitted Relief Request 22 to the U.S. Nuclear Regulatory Commission (NRC). The purpose of the relief request was to obtain permission to implement an alternative from certain provisions of the ASME Code, Section XI, 1989 Edition, No Addenda, contained in the second 10-year interval in service inspection (ISI) program. FPL proposed implementing the criteria of ASME Code Case N-622 as an alternative to the prescriptive UT examination requirements in the ASME Code. The NRC authorized the proposed alternative, with conditions, by letter dated September 23, 1999 (TAC NO. MA5041). The accessible areas of the shell welds were examined with personnel, equipment and procedures that were qualified by demonstration in accordance with Supplements 4 and 6 of the 1995 Edition, 1996 Addenda of the ASME Code, Section XI, Appendix VIII, using the Performance Demonstration Initiative (PDI) protocol. These examinations were performed from both sides of the welds, scanning both parallel and perpendicular to the weld to the maximum extent possible. The examinations performed utilizing demonstrated and qualified techniques provided an equivalent or better examination than the requirements of the 1989 Edition, No Addenda, of ASME Section XI.

FPL performed ultrasonic examinations of the remaining reactor vessel welds listed in this relief request (outlet nozzle-to-shell welds and flange-to-upper shell weld) in accordance with the requirements of 10 CFR 50.55a, plant technical specifications, and the 1989 Edition, No Addenda, of ASME Section XI to the maximum extent possible. Additionally, the mechanized techniques employed for examination from the RPV inside have also been demonstrated in accordance with Supplements 4 and 6 of the 1995 Edition, 1996 Addenda of the ASME Code Section XI, Appendix VIII, using the Performance Demonstration Initiative Protocol.

NRC letter dated May 4, 1995 (TAC NO. M87208) approved the initial submittal of Relief Request 1. The previous submittal of the relief request was based

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upon the techniques utilized and the limitations encountered during the examination during the first 10-year in service inspection interval and detailed the anticipated examination volume coverage for the examinations performed during the second 10-year in service inspection interval examinations. This revision submits the examination volume coverages obtained during the second 10-year in service inspection interval inspection.

In addition to the required ultrasonic examination, the interior of the reactor vessel, including welded attachments, received a visual examination in accordance with Table IWB-2500-1, Examination Categories B-N-1, B-N-2 and B-N-3. The visual examinations revealed no indications.

The subject welds were examined in the first interval during the 10-year reactor vessel examination. These examinations did not reveal any recordable or reportable flaws during the previous examination.

The extent of examination volume achieved ultrasonically, the alternate scans performed, and the system pressure tests provide assurance of an acceptable level of quality and safety.

7. **Duration of Proposed Alternative**

Second In Service Inspection Interval
August 8, 1993 to August 8, 2003

8. **References**

10 CFR 50.55a

ASME Section XI, Rules For In Service Inspection of Nuclear Power Plant Components, 1989 Edition, No Addenda.

ASME Section XI, Division 1, Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, Section XI, Division 1.

ASME Section XI, "Rules For In Service Inspection of Nuclear Power Plant Components," 1995 Edition, 1996 Addenda

ASME Section XI, Division 1, Code Case N-622, Ultrasonic Examination of RPV and Piping and Bolts and Studs, Section XI, Division 1.

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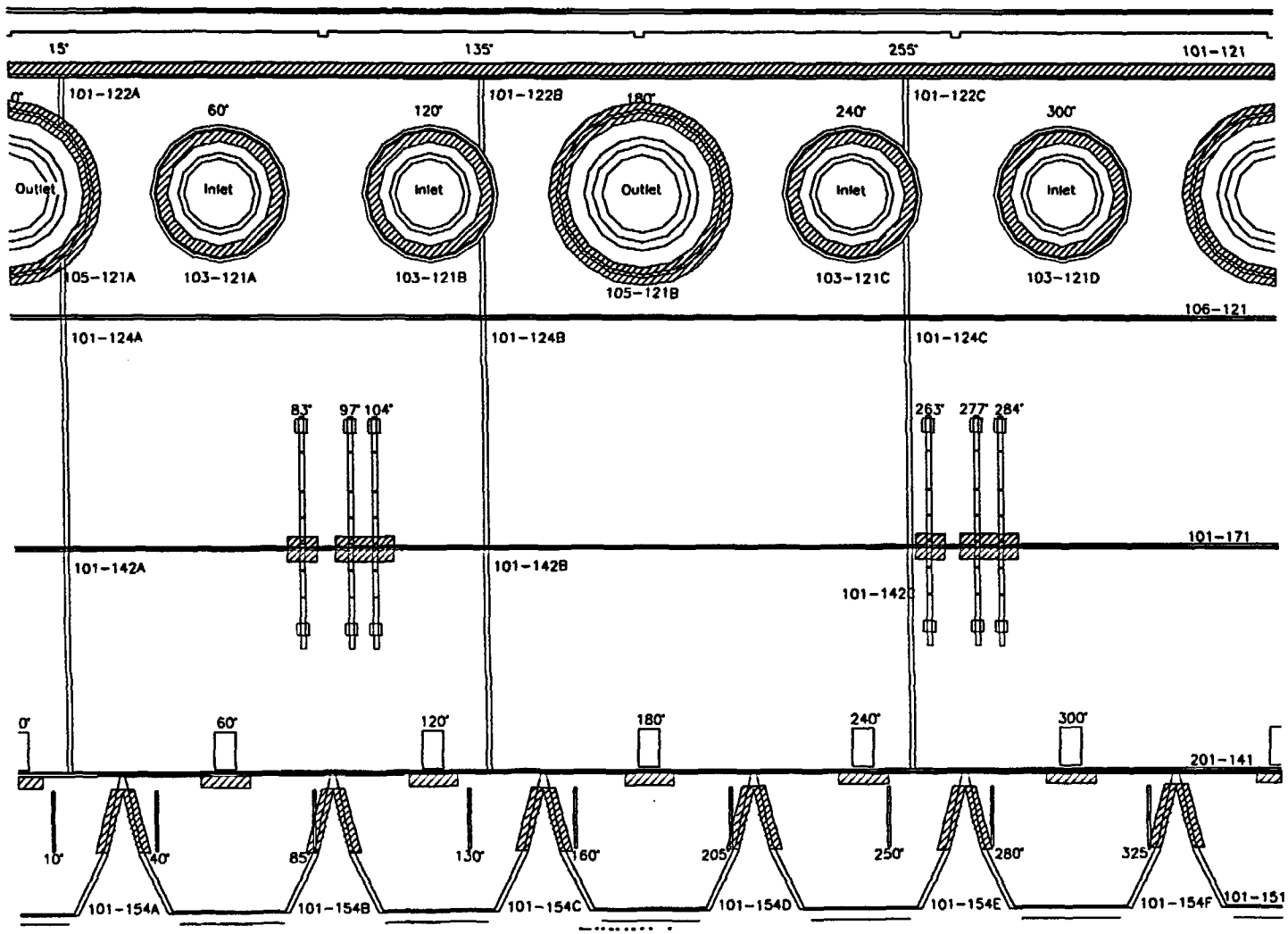


Reactor Vessel Roll Out View
Figure 1

**St. Lucie Unit 2**
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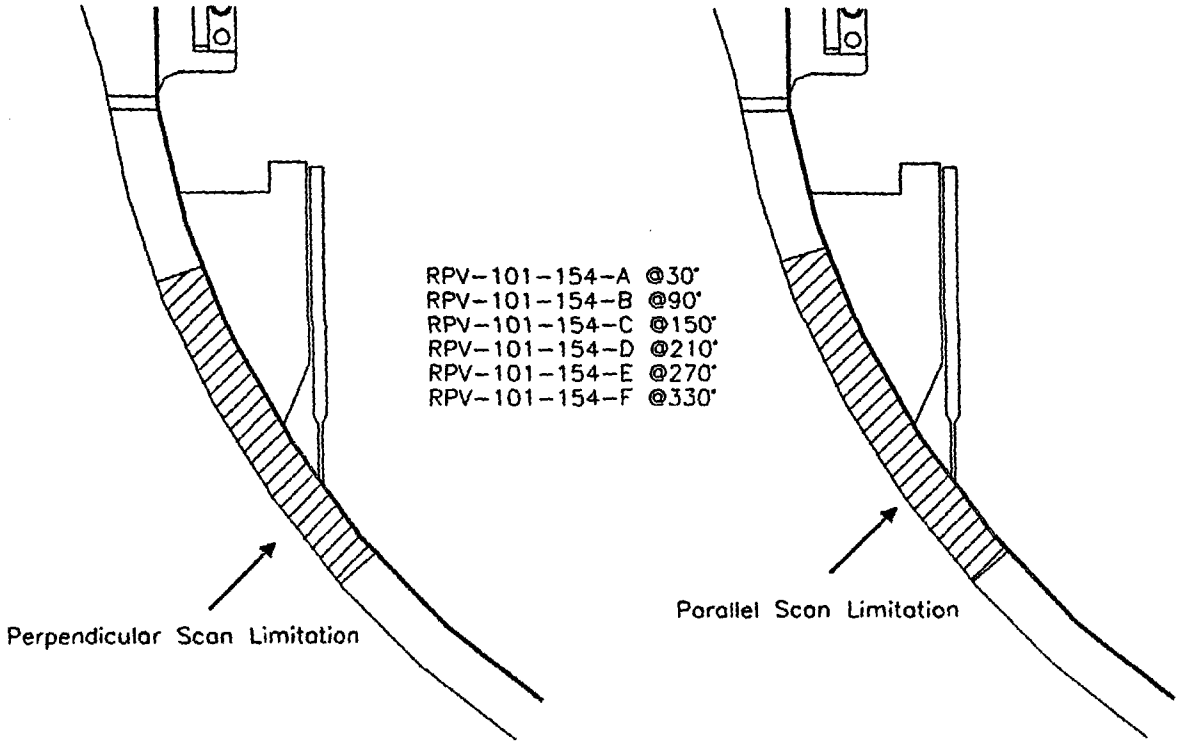


Meridional Weld Volume Limitation Illustration
Figure 2

**St. Lucie Unit 2**
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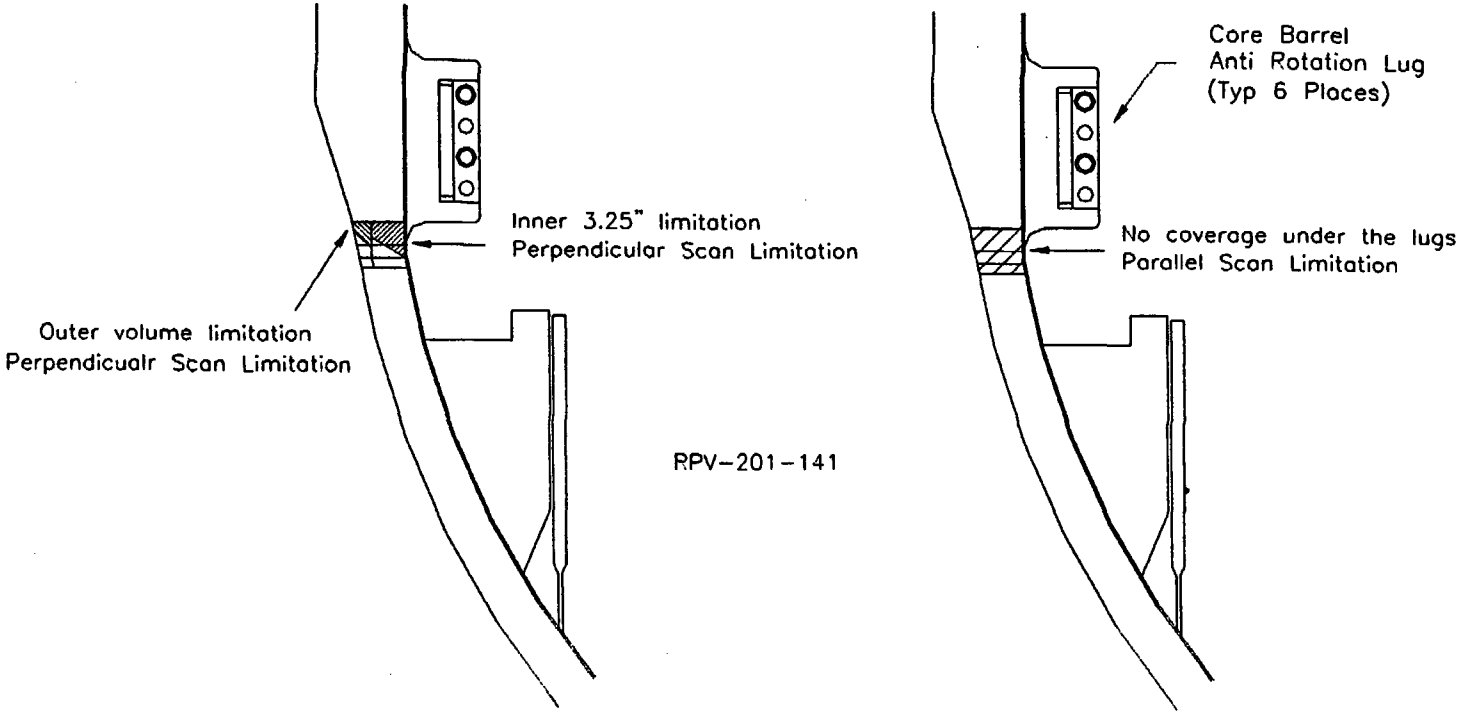


**Bottom Head to Lower Shell Girth Weld Volume Limitation Illustration**
**Figure 3**

**St. Lucie Unit 2**
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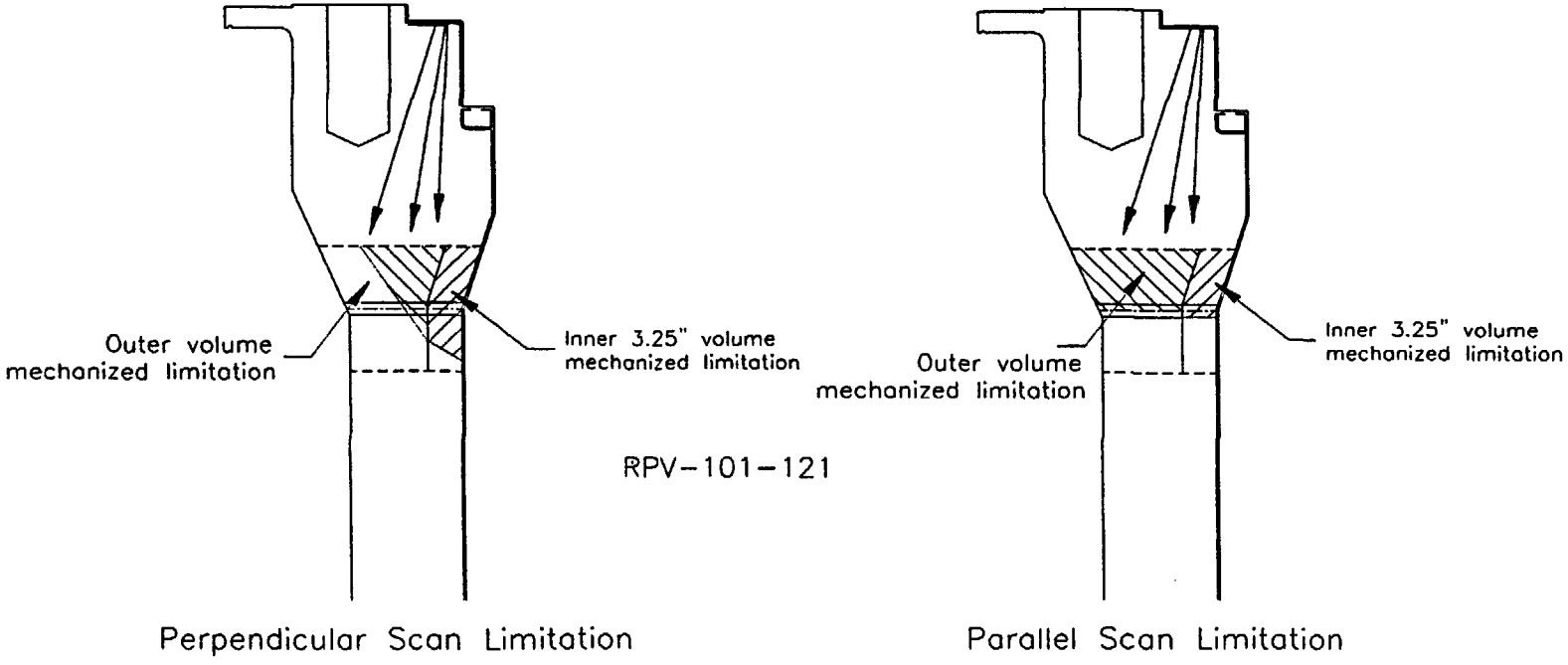


**Upper Shell to Flange Weld Volume Limitation Illustration**
**Figure 4**

**St. Lucie Unit 2**
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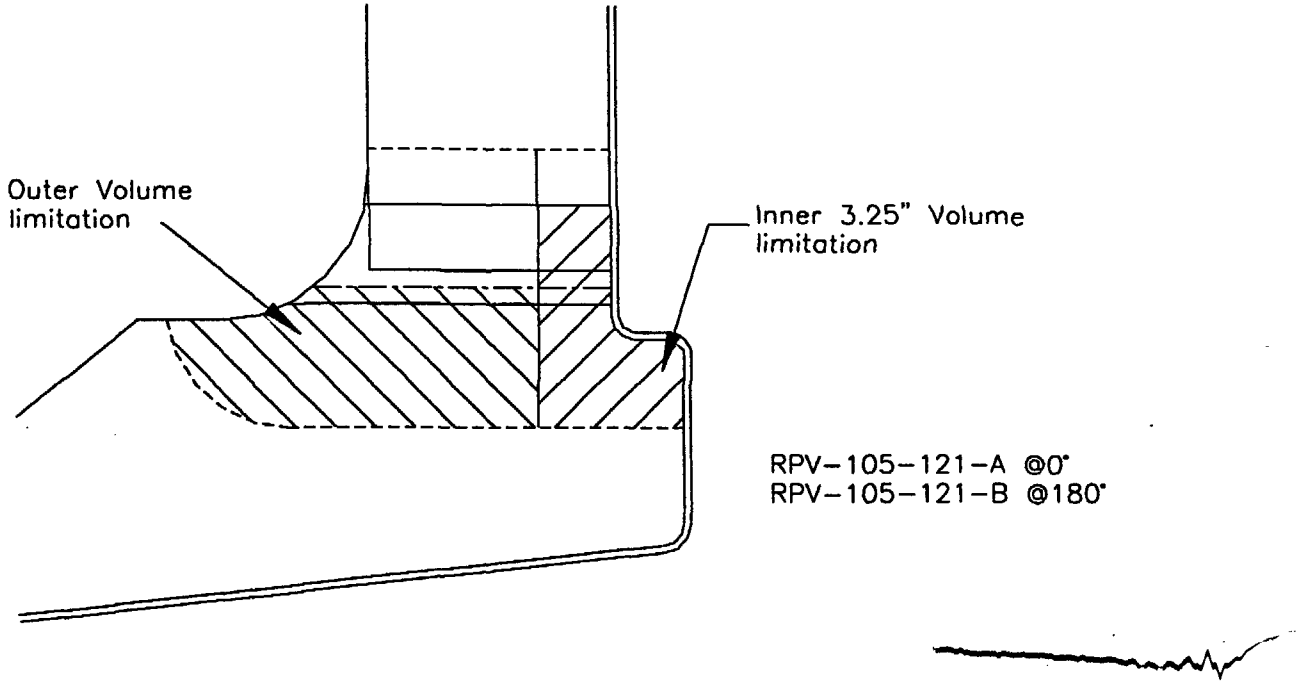


**Outlet Nozzle to Shell Weld Volume Limitation Illustration**
**Figure 5**

**St. Lucie Unit 2**
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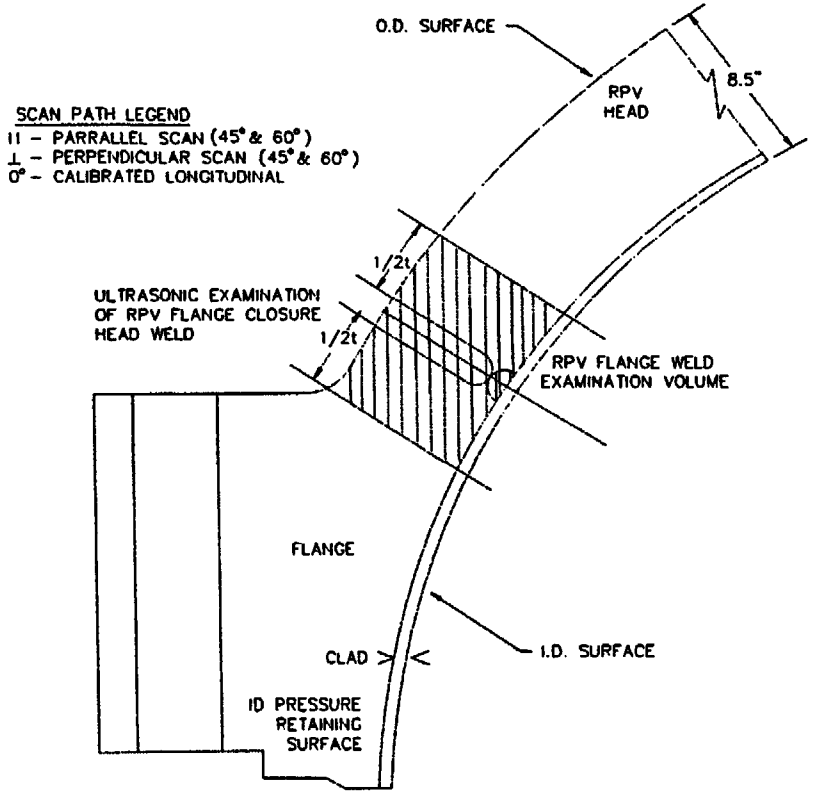


Closure Head to Flange Weld Examination Volume
Figure 6

**St. Lucie Unit 2**
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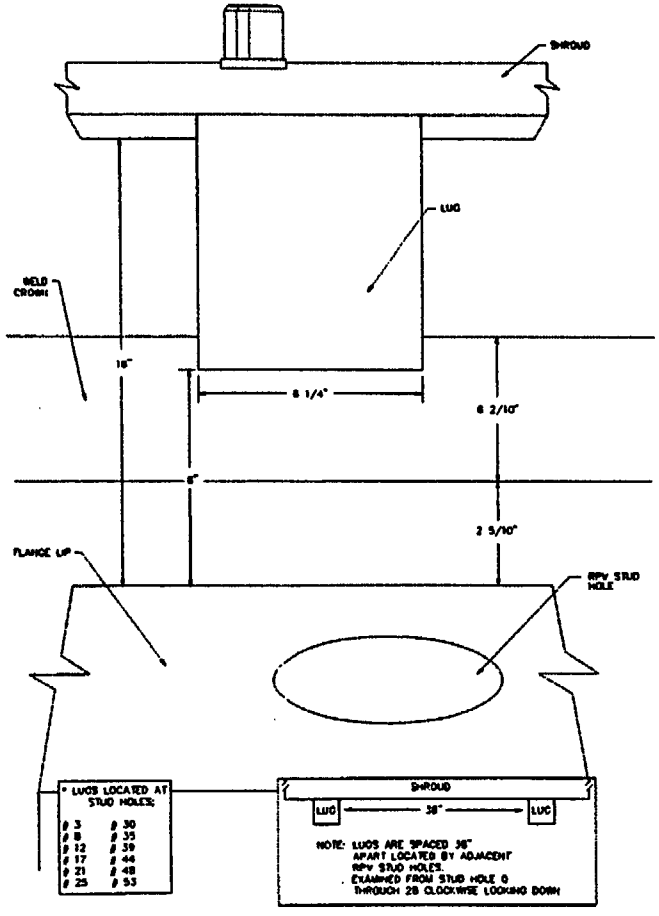


Closure Head to Flange Weld Shroud Limitations
Figure 7

**St. Lucie Unit 2**
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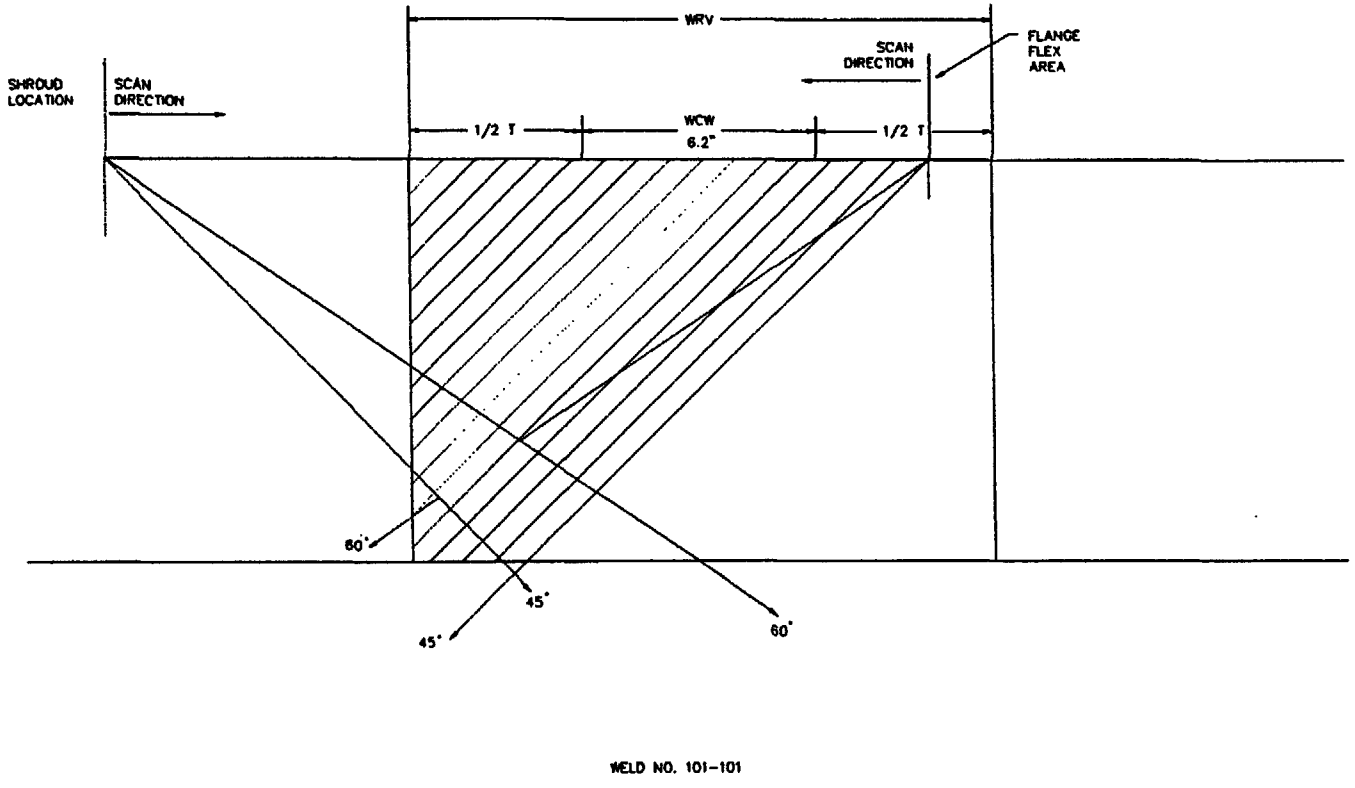


Closure Head to Flange Weld Volume Limitation Illustration
Figure 8

**St. Lucie Unit 2**
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**RELIEF REQUEST NUMBER 10A (Revised)**

Relief Request
**In Accordance with 10 CFR 50.55a(g)(5)(iii)**

--In Service Inspection Impracticality--

## 1. ASME Code Component(s) Affected

Class 2, austenitic, pressure retaining similar metal welds in piping

## 2. Applicable Code Edition and Addenda

The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Rules for In Service Inspection of Nuclear Power Plant Components, Section XI, 1989 Edition, No Addenda.

## 3. Applicable Code Requirement

| Exam Cat. | Item No. | Examination Requirements |
|---|---|---|
| C-F-1 | C5.11 | Essentially 100% volumetric and surface examination of Circumferential welds for >4" nominal pipe size (NPS). |
| C-F-1 | C5.21 | Essentially 100% volumetric and surface examination of Circumferential welds for ≥2" and ≤4" nominal pipe size. |

As defined by ASME Code Case N-460, essentially 100% means more than 90% of the examination volume of each weld where reduction in coverage is due to interference by another component or part geometry.

## 4. Impracticality of Compliance

Due to the configuration of the welds included within this relief request, it is impractical to meet the examination coverage requirements of the ASME Code, Section XI, 1989 Edition, No Addenda, as clarified by Code Case N-460. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii). These areas were found during the second 10-year in service inspection interval.

When a component has conditions which limit the examination volume, Florida Power and Light is required to submit the information to the enforcement and regulatory authorities having jurisdiction at the plant site. This Relief Request has been written to address areas where those types of conditions exist and the required amount of coverage was reduced below the minimum acceptable.

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When examined, the welds listed within this request did not receive the required code volume coverage due to their configuration and/or the presence of permanent attachments. These scanning limitations prohibit essentially 100% ultrasonic examination coverage of the required examination volume.

The Table 1 summarizes the percent of coverage achieved and references specific Figures 1-17 that show the extent of coverage. Arrows and lines on the figures illustrate the UT transducer beam direction and extent of the area examined.

Relief is requested from the ASME Boiler and Pressure Vessel Code required volume as identified in Figure IWC-2500-7.

5. **Burden Caused by Compliance**

Examinations are performed to the maximum extent possible. The Ultrasonic (UT) techniques for each weld were reviewed to determine if additional coverage could be achieved. If practical, physical obstructions were removed. For the welds listed within Table 1, it was not possible to remove the obstruction without significant work, increased radiation exposure, and/or damage to the plant. Additional weld preparation by welding to metal removal is a modification of the examination area requiring significant engineering and construction personnel support. Increased radiation exposure and cost would be incurred in order to perform these modifications.

Radiography is impractical due to the amount of work being performed in the areas on a 24 hour basis. This would result in numerous work related stoppages and increased exposure due to the shutdown of and startup of other work in the areas. The water must be drained from systems where radiography is performed. Removal of water from associated piping is not always possible, and when performed, increases the radiation dose rates over a much broader area than the weld being examined. There would be significant burden associated with the performance of weld or area modifications or radiography in order to increase the examination coverage.

6. **Proposed Alternative and Basis for Use**

**Proposed Alternative**

1) Surface examination per category C-F-1.

2) Conduct ultrasonic examinations to the maximum extent possible.

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3) Periodic system pressure tests in accordance with ASME Section XI Category C-H, Table IWC-2500-1.

Basis

FPL performed in service examinations of selected welds in accordance with the requirements of 10 CFR 50.55a, plant technical specifications, and the 1989 Edition, No Addenda, of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI. When a component has conditions which limit the examination volume, Florida Power and Light is required to submit the information to the enforcement and regulatory authorities having jurisdiction at the plant site. This relief request has been written to address areas where those types of conditions exist and the required amount of coverage was reduced below the minimum acceptable.

It is not possible to obtain ultrasonic interrogation of greater than 90% of the required examination volume due to interference caused by configuration and/or permanent attachments. Configuration, permanent attachments and/or structural interference prohibits 100% ultrasonic examination of Code required volume. Additional ultrasonic techniques are employed, where practical, to achieve the code required volume. Table 1 summarizes the percent of coverage achieved and references specific figures that illustrate the extent of the coverage obtained. Arrows and lines on the figures illustrate the UT transducer beam direction and extent of the area examined.

For examinations performed prior to the 10 CFR 50.55a required expedited implementation of Appendix VIII, Supplements 2 and 3 (May 22, 2000), the ultrasonic testing (UT) techniques for each weld were reviewed to determine if additional coverage could have been achieved. FPL's procedures require the examiner to consider whether additional coverage is necessary and practical. Those alternate techniques were investigated at the time of discovery. The alternate techniques considered were extending the calibration distance and/or using additional beam angles or modes. This often provided the additional coverage needed to avoid relief. Using additional UT techniques on the weld examination areas in this relief request would have provided little or no additional coverage. The coverage obtained was the maximum practical.

For examinations performed after the 10 CFR 50.55a required expedited implementation of Appendix VIII, Supplements 2 and 3 (May 22, 2000), the ultrasonic testing (UT) was performed utilizing personnel qualified and procedures demonstrated in accordance with the Performance Demonstration Initiative (PDI) program. In the cases where austenitic materials were examined (Code category C-F-1), the credited volumetric examination of the weld required volume (WRV) is limited when access can only be obtained from one side. It should be noted that the volumetric examination was performed through 100% of

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the Code WRV, however, the PDI Appendix VIII procedure used is not qualified for the detection of flaws on the far side of single sided access examinations of austenitic piping welds. The techniques employed for the single sided access examinations provide for a best effort examination. The coverage obtained was the maximum practical.

The required surface examinations were performed and were not limited. In all cases, 100 percent of the code required surface area was examined. These surface examinations did not reveal any recordable or reportable flaws in accordance with the ASME Code Section XI, 1989 Edition, No Addenda.

FPL performed the examinations to the maximum extent possible. Operations personnel and system engineers perform walkdowns of every system on a periodic basis looking for leakage or other abnormal conditions. Surface and volumetric examinations performed, along with the required system pressure tests, provide reasonable assurance of an acceptable level of quality and safety.

10 CFR 50.55a(g)(4) recognizes that throughout the service life of a nuclear power facility, components which are classified as ASME Code Class 1, Class 2, and Class 3, must meet the requirements set forth in the ASME Code to the extent practical within the limitations of design, geometry and materials of construction of the components.

The extent of examination volume achieved ultrasonically (see Table) coupled with the system pressure tests provide assurance of an acceptable level of quality and safety.

7. **Duration of Proposed Alternative**

Second In Service Inspection Interval
August 8, 1993 to August 8, 2003

8. **References**

10 CFR 50.55a

ASME Section XI, Rules For In Service Inspection of Nuclear Power Plant Components, 1989 Edition, No Addenda.

ASME Section XI, Division 1, Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, Section XI, Division 1.

ASME Section XI, Rules For In Service Inspection of Nuclear Power Plant Components, 1995 Edition, 1996 Addenda.

**St. Lucie Unit 2**
**SECOND INSPECTION INTERVAL**
**RELIEF REQUEST NUMBER 10A (Revised)**

| Table 1<br>Category C-F-1 | | | | | |
|---|---|---|---|---|---|
| ASME Code Component | Component ID | Year Of Exam | Applicable Code Requirement and Coverage Obtained | Fig. | Impracticality of Compliance |
| Pipe to penetration 37, LPSI pump 2A discharge header piping | SI-112-FW-6 (6"-160) | 2003 | Exam Category C-F-1 Item No. C5.11 Fig. IWC-2500-7(a) 50% volume coverage | 1 | In service examination limited by configuration, examination performed with Appendix VIII demonstrated procedure, examination complete of pipe side and best effort examination of penetration side performed though weld material. |
| Pipe to valve 3144, LPSI pump 2B discharge header piping | SI-146-FW-2 (6"-160) | 1994 | Exam Category C-F-1 Item No. C5.11 Fig. IWC-2500-7(a) 54% volume coverage | 2 | In service examination limited by valve side taper, examination complete of pipe side and limited access from valve side due to taper. |
| Pipe to penetration 39, LPSI pump 2B discharge header piping | SI-110-FW-10 (6"-160) | 1997 | Exam Category C-F-1 Item No. C5.11 Fig. IWC-2500-7(a) 80% volume coverage | 3 | In service examination limited by penetration, examination complete of pipe side and limited access from penetration side. |
| Pipe to penetration 38, LPSI pump 2B discharge header piping | SI-111-FW-9 (6"-160) | 2001 | Exam Category C-F-1 Item No. C5.11 Fig. IWC-2500-7(a) 50% volume coverage | 4 | In service examination limited by configuration, examination performed with Appendix VIII demonstrated procedure, examination complete of pipe side and best effort examination of penetration side performed though weld material. |

**St. Lucie Unit 2**
**SECOND INSPECTION INTERVAL**
**RELIEF REQUEST NUMBER 10A (Revised)**

| Table 1<br>Category C-F-1 | | | | | |
|---|---|---|---|---|---|
| ASME Code Component | Component ID | Year Of Exam | Applicable Code Requirement and Coverage Obtained | Fig. | Impracticality of Compliance |
| Pipe to valve 3260, Safety injection piping to safety injection tank 2B1 | SI-111-FW-10 (6"-160) | 2001 | Exam Category C-F-1 Item No. C5.11 Fig. IWC-2500-7(a) 50% volume coverage | 5 | In service examination limited by configuration, examination performed with Appendix VIII demonstrated procedure, examination complete of pipe side and best effort examination of valve side performed though weld material. |
| Pipe to valve 3614, Safety injection tank 2A2 piping | SI-101-FW-2 (12"-160) | 2003 | Exam Category C-F-1 Item No. C5.11 Fig. IWC-2500-7(a) 50% volume coverage | 6 | In service examination limited by configuration, examination performed with Appendix VIII demonstrated procedure, examination complete of pipe side and best effort examination of valve side performed though weld material. |
| Pipe to valve 3235, Safety injection tank 2B1 piping | SI-103-FW-1 (12"-160) | 2003 | Exam Category C-F-1 Item No. C5.11 Fig. IWC-2500-7(a) 50% volume coverage | 7 | In service examination limited by configuration, examination performed with Appendix VIII demonstrated procedure, examination complete of pipe side and best effort examination of valve side performed though weld material. |
| Pipe to valve 3427, HPSI pump 2A to header A | SI-208-FW-1 (3"-160) | 1997 | Exam Category C-F-1 Item No. C5.21 Fig. IWC-2500-7(a) 72% volume coverage | 8 | In service examination limited by valve side taper, examination complete of pipe side and limited access from valve side due to taper. |

**St. Lucie Unit 2**
**SECOND INSPECTION INTERVAL**
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| Table 1<br>Category C-F-1 | | | | | |
|---|---|---|---|---|---|
| ASME Code Component | Component ID | Year Of Exam | Applicable Code Requirement and Coverage Obtained | Fig. | Impracticality of Compliance |
| Pipe to valve 3427, HPSI pump 2A to header A | SI-208-FW-2 (3"-160) | 1997 | Exam Category C-F-1 Item No. C5.21 Fig. IWC-2500-7(a) 72% volume coverage | 8 | In service examination limited by valve side taper, examination complete of pipe side and limited access from valve side due to taper. |
| Pipe to valve 3414, HPSI pump 2B to header B | SI-211-FW-1 (3"-160) | 1997 | Exam Category C-F-1 Item No. C5.21 Fig. IWC-2500-7(a) 75% volume coverage | 9 | In service examination limited by valve side taper, examination complete of pipe side and limited access from valve side due to taper. |
| Pipe to valve 3414, HPSI pump 2B to header B | SI-211-FW-2 (3"-160) | 1997 | Exam Category C-F-1 Item No. C5.21 Fig. IWC-2500-7(a) 75% volume coverage | 9 | In service examination limited by valve side taper, examination complete of pipe side and limited access from valve side due to taper |
| Pipe to valve 3654, HPSI pump 2B to header B | SI-213-FW-1 (6"-120) | 1994 | Exam Category C-F-1 Item No. C5.21 Fig. IWC-2500-7(a) 45% volume coverage | 10 | In service examination limited by valve side taper, examination complete of pipe side and limited access from valve side due to taper. |
| Pipe to valve 3547, Combined HPSI discharge piping | SI-179-FW-1 (3"-160) | 1994 | Exam Category C-F-1 Item No. C5.21 Fig. IWC-2500-7(a) 74% volume coverage | 11 | In service examination limited by valve side taper, examination complete of pipe side and access from valve side due to taper. |
| Pipe to flange, Combined HPSI discharge piping | SI-381-FW-1 (3"-160) | 1994 | Exam Category C-F-1 Item No. C5.21 Fig. IWC-2500-7(a) 47% volume coverage | 12 | In service examination limited by flange side taper and .75 inch line on pipe side, examination of pipe side limited by .75 inch line and access from valve side due to taper. |

**St. Lucie Unit 2**
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| Table 1<br>Category C-F-1 | | | | | |
|---|---|---|---|---|---|
| ASME Code Component | Component ID | Year Of Exam | Applicable Code Requirement and Coverage Obtained | Fig. | Impracticality of Compliance |
| Pipe to flange, Combined HPSI discharge piping | SI-179-20-SW-8 (3"-160) | 1994 | Exam Category C-F-1 Item No. C5.21 Fig. IWC-2500-7(a) 56% volume coverage | 12 | In service examination limited by flange side taper, examination of pipe side complete and access from valve side due to taper. |
| Pipe to flange, Combined HPSI discharge piping | SI-137-1-SW-1 (3"-160) | 1994 | Exam Category C-F-1 Item No. C5.21 Fig. IWC-2500-7(a) 56% volume coverage | 12 | In service examination limited by flange side taper, examination of pipe side complete and access from valve side due to taper. |
| Pipe to tee, Combined HPSI discharge piping | SI-110-1-SW-6 (3"-160) | 1994 | Exam Category C-F-1 Item No. C5.21 Fig. IWC-2500-7(a) 50% volume coverage | 13 | In service examination limited by tee side configuration, examination of pipe side complete and access limited from tee side. |
| Pipe to tee, HPSI header B to shutdown cooling loop 2B | SI-213-1-SW-11 (3"-160) | 2001 | Exam Category C-F-1 Item No. C5.21 Fig. IWC-2500-7(a) 68% volume coverage | 14 | In service examination limited by configuration, examination performed with Appendix VIII demonstrated procedure, examination complete of pipe side and best effort examination of tee side in area of radius performed though weld material. |
| Pipe to tee, HPSI header B to shutdown cooling loop 2B | SI-220-1-SW-8 (3"-160) | 2001 | Exam Category C-F-1 Item No. C5.21 Fig. IWC-2500-7(a) 68% volume coverage | 14 | In service examination limited by configuration, examination performed with Appendix VIII demonstrated procedure, examination complete of pipe side and best effort examination of tee side in area of radius performed though weld material. |

**St. Lucie Unit 2**
**SECOND INSPECTION INTERVAL**
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| Table 1<br>Category C-F-1 | | | | | |
|---|---|---|---|---|---|
| ASME Code Component | Component ID | Year Of Exam | Applicable Code Requirement and Coverage Obtained | Fig. | Impracticality of Compliance |
| Elbow to flange, HPSI header B to shutdown cooling loop 2B | SI-382-FW-1 (3"-160) | 2001 | Exam Category C-F-1 Item No. C5.21 Fig. IWC-2500-7(a) 50% volume coverage | 15 | In service examination limited by configuration, examination performed with Appendix VIII demonstrated procedure, examination complete of elbow side and best effort examination of flange side though weld material. Flange side inaccessible. |
| Pipe to valve 3522, HPSI header B to shutdown cooling loop 2B | SI-180-FW-2 (3"-160) | 2001 | Exam Category C-F-1 Item No. C5.21 Fig. IWC-2500-7(a) 50% volume coverage | 16 | In service examination limited by configuration, examination performed with Appendix VIII demonstrated procedure, examination complete of pipe side and best effort examination of valve side though weld material. |
| Pipe to valve 3526, HPSI 2B discharge to shutdown cooling loop 2B | SI-181-FW-14 (3"-160) | 2001 | Exam Category C-F-1 Item No. C5.21 Fig. IWC-2500-7(a) 50% volume coverage | 17 | In service examination limited by configuration, examination performed with Appendix VIII demonstrated procedure, examination complete of pipe side. |

**St. Lucie Unit 2**
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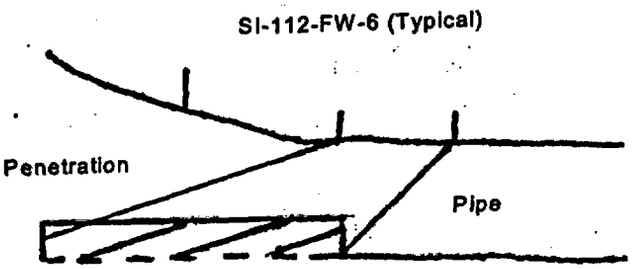


Figure 1

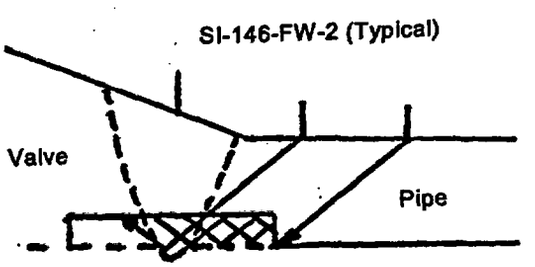


Figure 2

**St. Lucie Unit 2**
**SECOND INSPECTION INTERVAL**
**RELIEF REQUEST NUMBER 10A (Revised)**

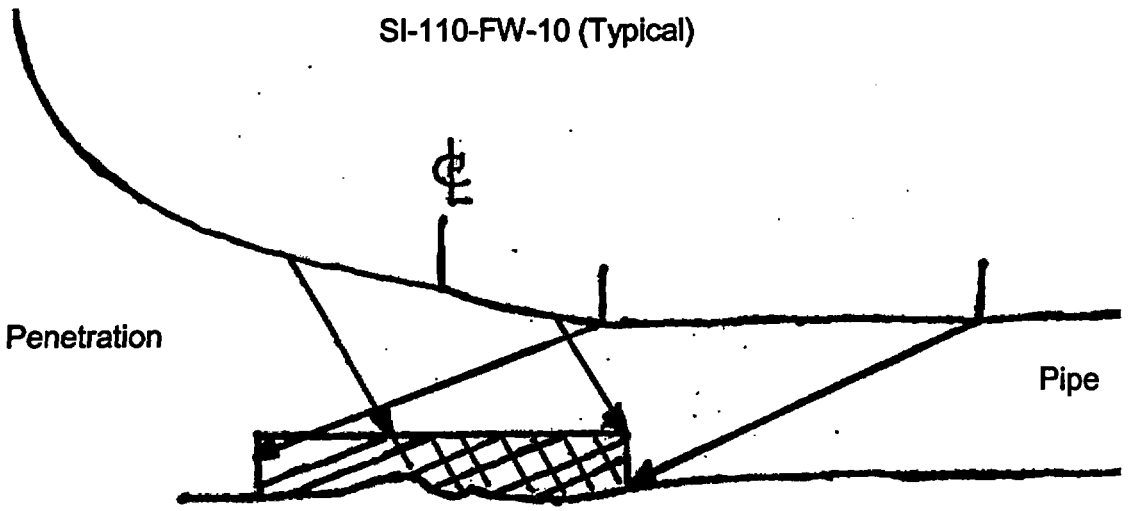


Figure 3

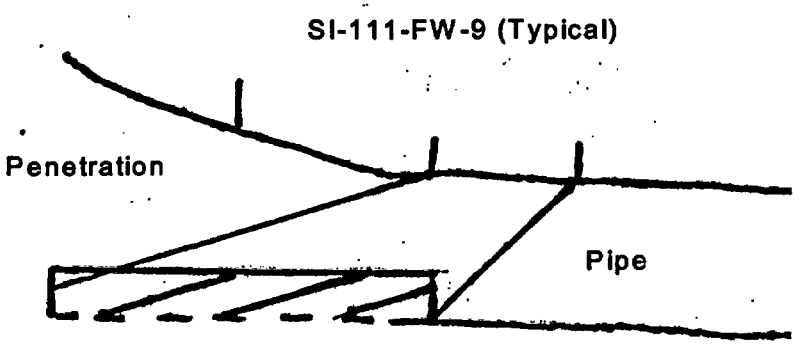


Figure 4

**St. Lucie Unit 2**
**SECOND INSPECTION INTERVAL**
**RELIEF REQUEST NUMBER 10A (Revised)**

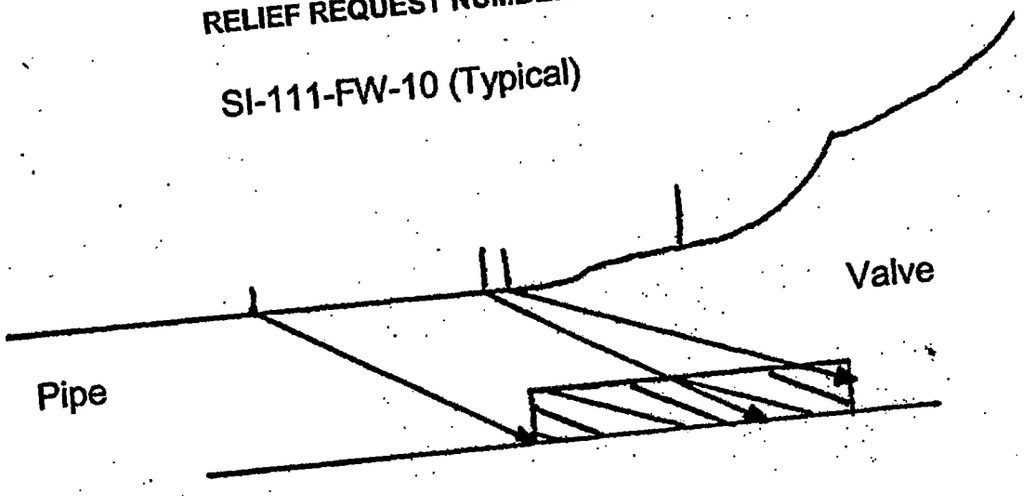


Figure 5

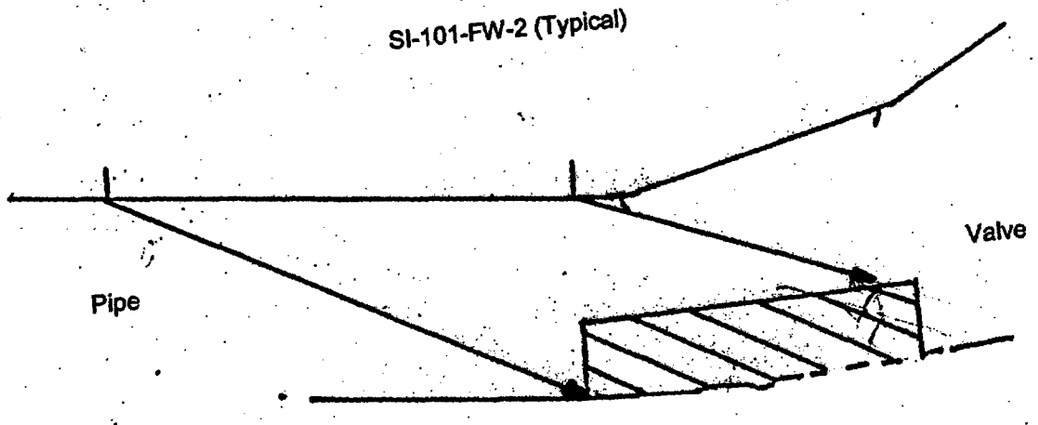


Figure 6

**St. Lucie Unit 2**
**SECOND INSPECTION INTERVAL**
**RELIEF REQUEST NUMBER 10A (Revised)**

SI-103-FW-1 (Typical)

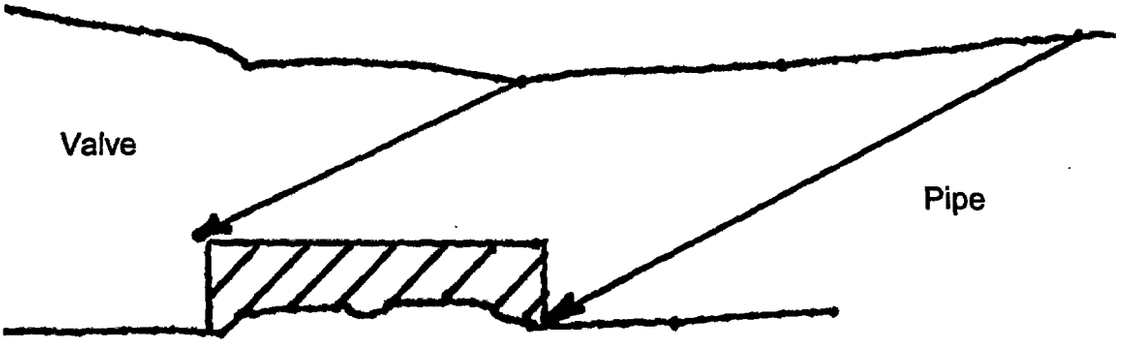


Figure 7

SI-208-FW-1 (Typical)
SI-208-FW-2 (Typical)

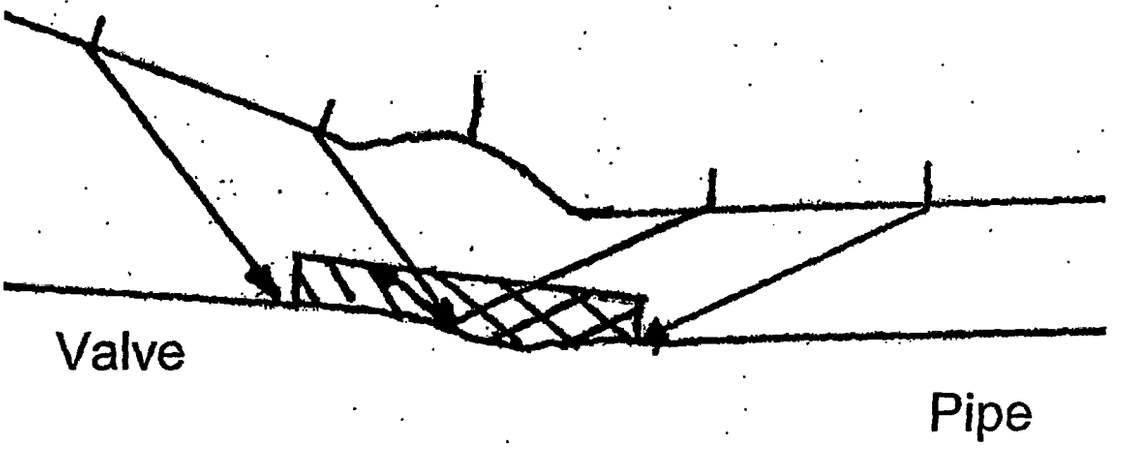


Figure 8

St. Lucie Unit 2
SECOND INSPECTION INTERVAL
RELIEF REQUEST NUMBER 10A (Revised)

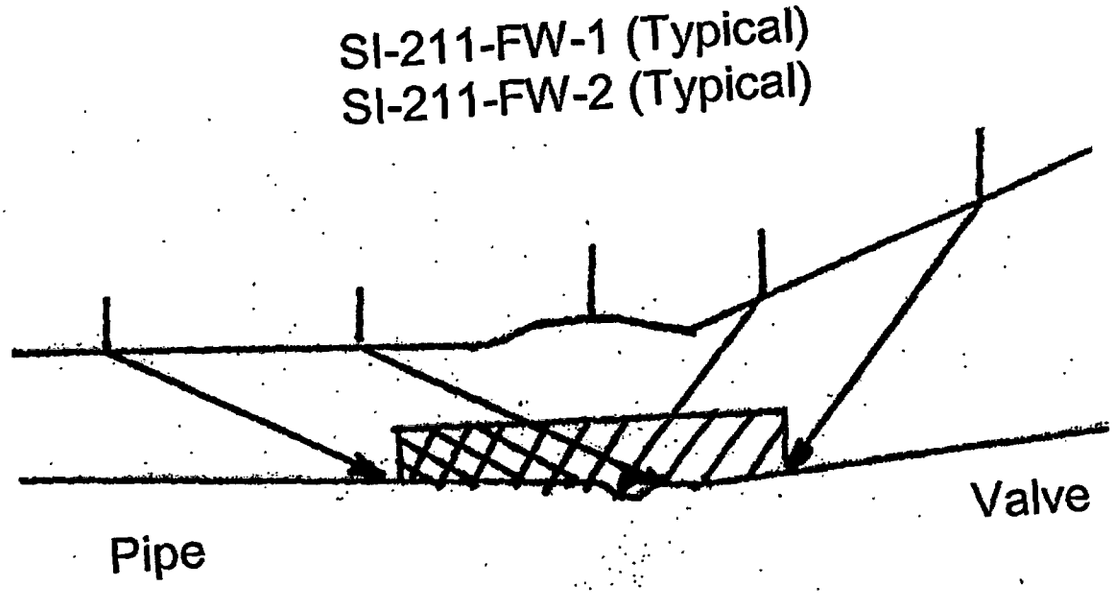


Figure 9

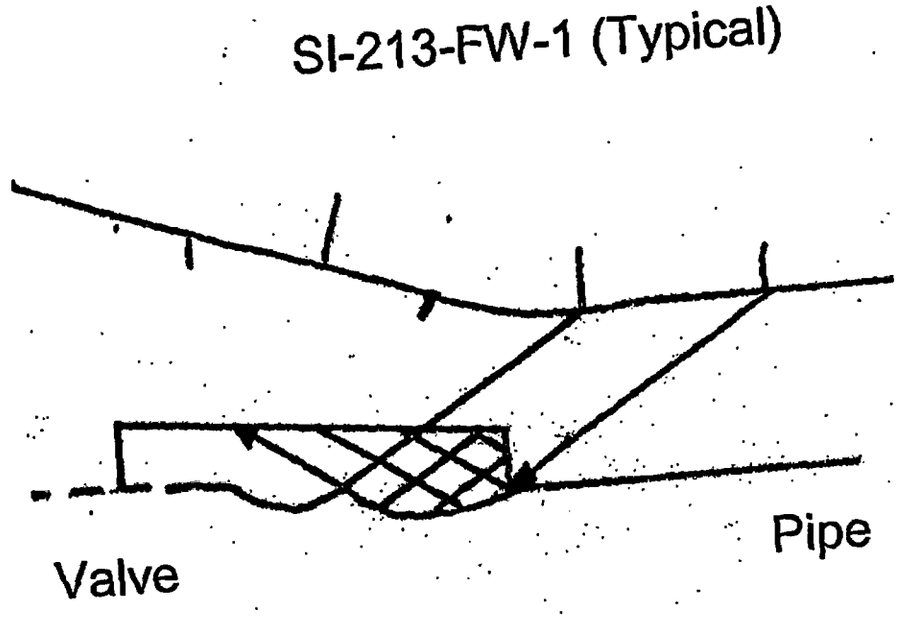


Figure 10

**St. Lucie Unit 2**
**SECOND INSPECTION INTERVAL**
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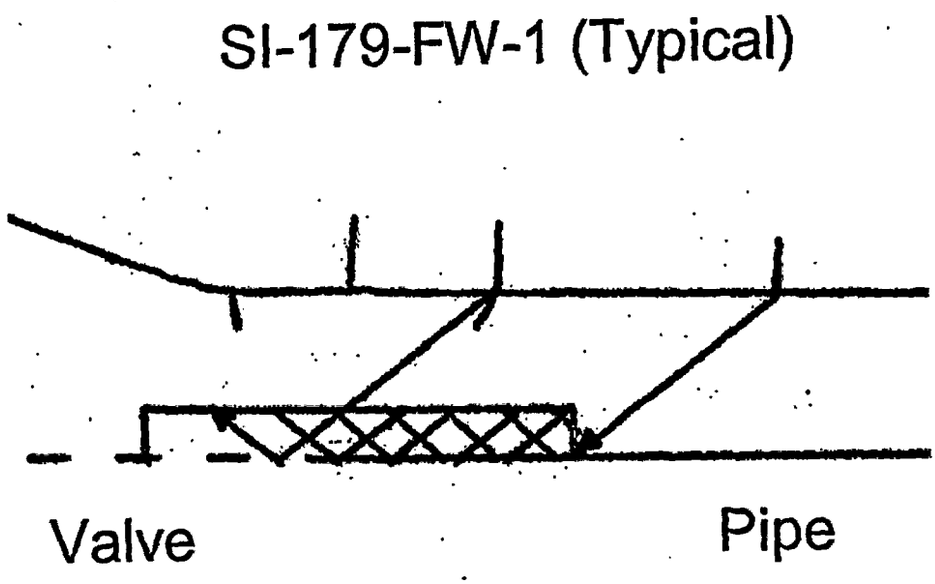


Figure 11

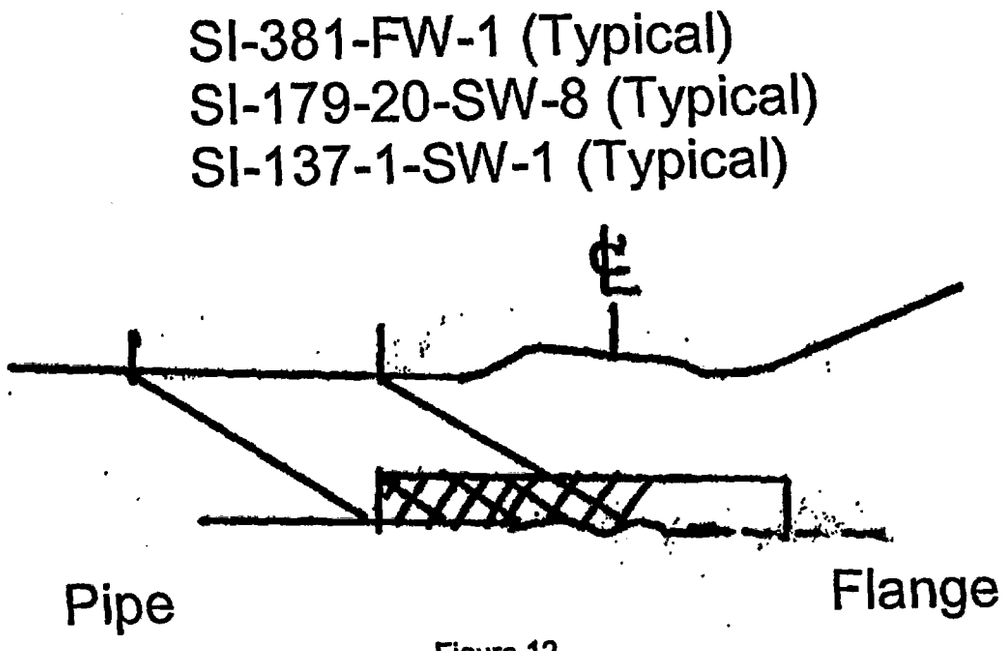


Figure 12

**St. Lucie Unit 2**
**SECOND INSPECTION INTERVAL**
**RELIEF REQUEST NUMBER 10A (Revised)**

SI-110-1-SW-6 (Typical)

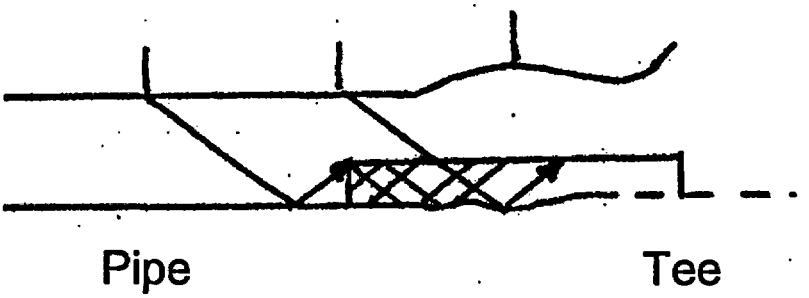


Figure 13

SI-213-1-SW-11 (Typical)
SI-220-1-SW-8 (Typical)

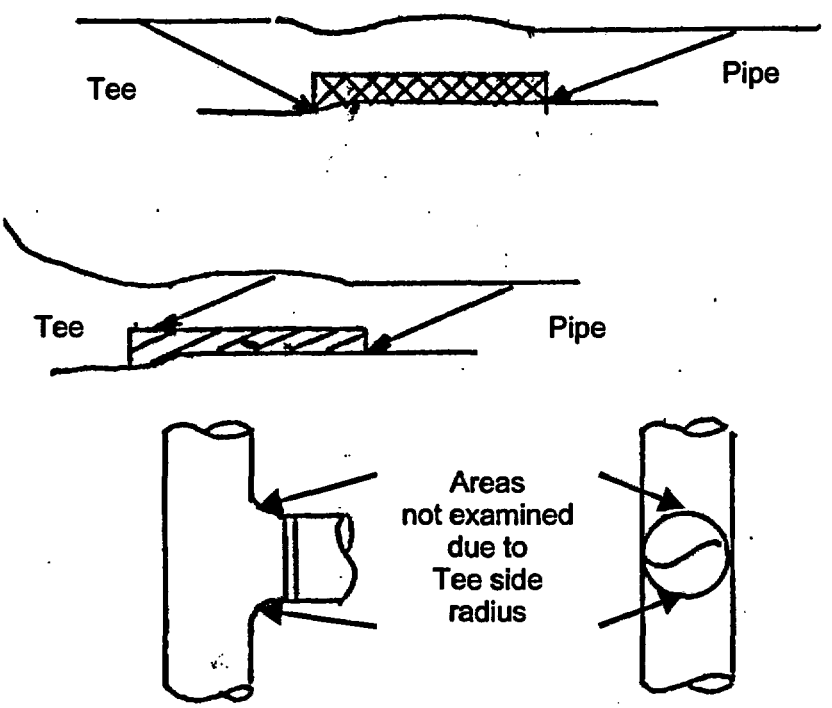


Figure 14

**St. Lucie Unit 2**
**SECOND INSPECTION INTERVAL**
**RELIEF REQUEST NUMBER 10A (Revised)**

SI-382-FW-1 (Typical)

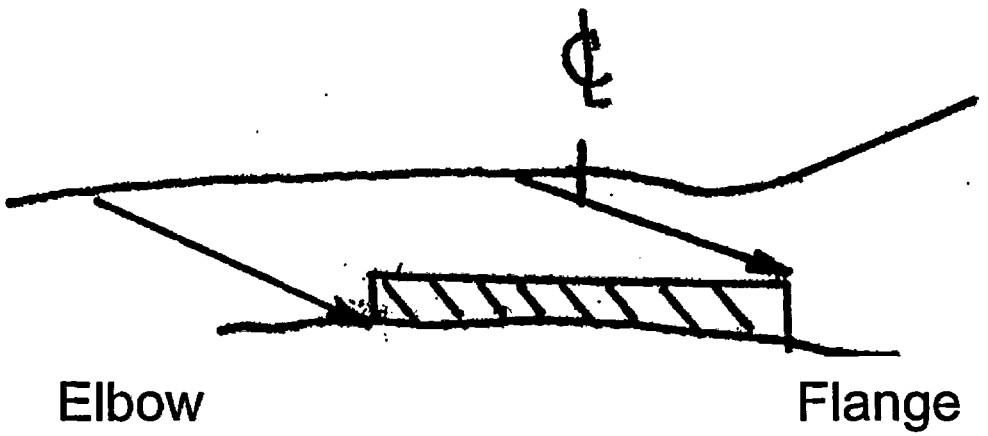


Figure 15

SI-180-FW-2 (Typical)

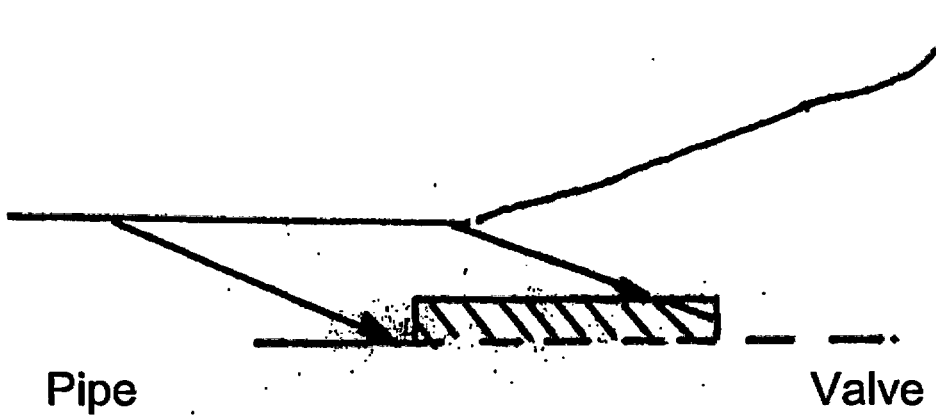


Figure 16

**St. Lucie Unit 2**
**SECOND INSPECTION INTERVAL**
**RELIEF REQUEST NUMBER 10A (Revised)**

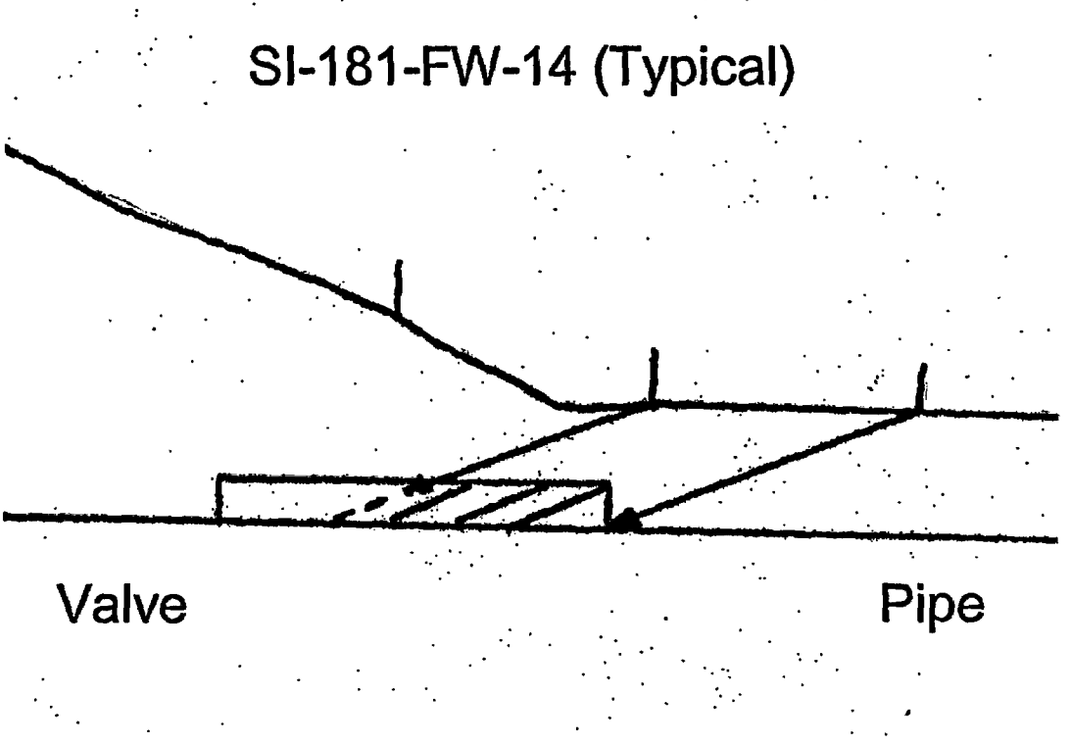


Figure 17