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

May 1, 2003

L-2003-116
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 37

Pursuant to 10 CFR 50.55a(a)(3)(i), Florida Power and Light Company (FPL) requests approval of Relief Request 37, *Alternative Examination Of Class 3 Piping Base Metal Weld Repairs*. This request is to eliminate the requirement for radiography of Class 3 piping base metal repair welds when repair welds are greater than 10 in^2 in area. The subject piping is on the intake cooling water (ICW) headers. The details of the 10 CFR 50.55a request are attached.

FPL requests authorization of this relief request by May 4, 2003 to support placing ICW piping in service to allow for the refueling outage electrical train swap. This emergent relief is required because the extent of repairs was not evident prior to the current refueling outage. FPL initially planned the repair scope to rectify two previously identified temporary non code repairs and rebuild structural components. However, on April 18, 2003, FPL identified additional repair scope after evaluating field data. FPL completed the final repair area excavations on April 25, 2003. Due to the proximity of some of the additional repairs, the repair preparation excavation activities resulted in some repair areas exceeding 10 in^2. On April 30, 2003, after numerous discussions with ASME Code experts, FPL concluded that radiography would be required on any identified repair areas that exceeded 10 in^2 unless the NRC granted ASME Code relief. This Relief Request proposes an alternate that results in repair welds receiving a degree of examination equivalent to that imposed on pipe welds during the construction period. This alternate provides an acceptable level of quality and safety.

Please contact George Madden at 772-467-7155 if there are any questions about this submittal.

Very truly yours,

William Jefferson Jr.
Vice President
St. Lucie Plant

Attachment

WJ/GRM

A047

10 CFR 50.55a ST. LUCIE UNIT 2
SECOND INSPECTION INTERVAL
RELIEF REQUEST NUMBER 37, Revision 0

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternative Provides Acceptable Level of Quality and Safety

"EXAMINATION OF CLASS 3 PIPING BASE METAL WELD REPAIRS"

1. ASME Code Component(s) Affected

All ASME Class 3 piping and components:
such as shown on FPL Drawing 2998-G-082 Sheet 2, Revision 48, "Flow Diagram Circulating & Intake Cooling Water System"

2. Applicable Code Edition and Addenda

ASME B&PV Code, Section XI, 1989 edition (Applicable Inservice Inspection Requirements)

3. Applicable Code Requirement

ASME B&PV Code, 1989 edition, Section XI, Article IWD-4000, "Repair Procedures," Paragraph IWD-4100, "Scope," states: The rules of IWA-4000 apply.

Article IWA-4000, "Repair Procedures," Paragraph, IWA-4120, "Rules and Requirements" states:

> "(a) Repairs shall be performed in accordance with the Owner's Design Specification and the original Construction Code of the component or system. Later Editions and Addenda of the Construction Code or of Section III, either in their entirety or portions thereof, and Code Cases may be used..."

ASME B&PV Code, 1980 edition, Section III, Subsection ND, Paragraph ND-4130 "Repair of Material" states:

> "Defects in material which were accepted on delivery or which are discovered during the process of fabrication or installation may be eliminated or repaired by welding provided the defects are removed, repaired, and examined in accordance with the requirements of ND-2500 for the applicable product form, except that the limitation on the depth of the weld repair does not apply. However, radiography is not required for welded repairs in material used in components provided that the welds jointing these materials are not required to be radiographed, the extent of

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the welded repair does not exceed 10 sq in. (6540 mm^2) of the surface area, and the magnetic particle or liquid penetrant examination of the repair is made as required by ND-2539.4."

4. Reason for Request

Repairs are to be made to pipe that has suffered damage during service. Damage can be internal or external, localized or widespread. Such repairs are made in accordance with the requirements of ND-4130.

An example would be the repair of external corrosion on a 30" diameter pipe. The surface area of a full penetration circumferential butt weld in a 30" diameter pipe could be 95 in^2 and the weld would not require radiography. Should external corrosion occur on this pipe, a repair weld would be a partial thickness weld and if the corroded area was greater than 10 in^2, radiography would be required. The 95 in^2 of full penetration weld is considered acceptable for use without radiography while an adjacent weld of approximately, half the thickness, and one tenth of the area is not considered suitable unless the more stringent examination method is used. The requirement for radiography when the repair is more than 10 in^2 area is more stringent than the original construction requirements. The additional radiography is an involved process that is in excess of the original design and construction requirements and does not necessarily provide greater assurances of quality and safety.

This request is to eliminate the requirement for radiography of piping base metal repair welds when repair welds are greater than 10 in^2 in area and circumferential butt welds in the piping were not examined by radiography.

5. Proposed Alternative and Basis for Use

The proposed alternative is to inspect weld repairs to base metal in Class 3 piping systems in accordance with ASME B&PV Code, Section XI, 2001 edition, paragraph IWA-4520(a)(1) which states:

"Welding or brazing areas and welded joints made for installation of items shall be examined in accordance with the Construction Code identified in the Repair/Replacement Plan with the following exceptions:

Base metal repairs on Class 3 items are not required to be volumetrically examined when the Construction Code does not require that full penetration butt welds in the same location be volumetrically examined".

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In accordance with the proposed alternative, repair welds in Class 3 piping will receive a final surface examination but not radiographic examination, regardless of the surface area of the weld repair. Additionally, when the repair does not penetrate through the piping, the repair excavation area will receive a surface examination prior to welding. Also, where the repair penetrates through the piping, the root pass of the repair weld will receive a surface examination when required to comply with the conditions of Regulatory Guide 1.147 and Code Case N-416-1 (Reference 1). All of the class 3 piping welds at the St. Lucie Unit 2 plant received a final surface examination during construction; the welds were not radiographed. The final surface examination was in accordance with the governing Construction Code requirements. The proposed alternative results in repair welds receiving a degree of examination equivalent to that imposed on pipe welds during the construction period.

The requirement for imposing radiography on weld repairs with surface area greater than 10 in^2 is a common requirement from base material specifications. The requirement is to insure that the final product meets uniform expected properties. The material manufacturer works to a set of specific requirements, not knowing the exact use of the product, fabricating material for stock and subsequent delivery to end users. The requirement for radiography on weld repairs with surface area greater than 10 in^2 is appropriate for a material manufacturer. Once an item is installed, it exists in a specific environment and the universal nature of stock products is inappropriate. Accordingly, the controls to insure uniformity are no longer appropriate or meaningful after installation.

The proposed alternative will be employed starting with the current St. Lucie Unit 2 outage.

In conclusion, the proposal to examine piping base metal weld repairs in a manner equivalent to examination of circumferential butt welds in the piping is an alternative to the requirement to radiograph base metal repairs that have a surface area greater than 10 in^2 in piping that is not subject to radiographic examination. The alternate provides a degree of quality and safety equivalent to the Construction Code requirements, and has been approved by the ASME Code.

6. Duration of Proposed Alternative

The proposed alternative will be applicable to any base metal repairs in Class 3 piping for the remainder of the second interval for Unit 2.

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7. References

1) ASME Boiler and Pressure Vessel Code, Code Case N-416-1, "Alternative Pressure Test Requirements for Welded Repairs or Installation of Replacement Items by Welding, Class 1, 2, and 3, Section XI, Div. 1" as accepted by Regulatory Guide 1.147.

2) ASME Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," 2001 Edition.

3) ASME B&PV Code, Section III, Subsection ND, "Nuclear Plant Components – Class 3 Components," 1980 Edition (in accordance with the provisions of the Repair/Replacement Program).