



December 10, 2002

L-2002-245  
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  
Interim Relief Request 34

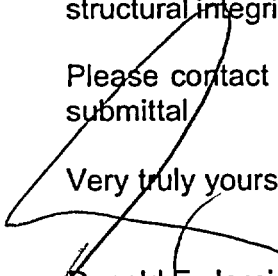
Pursuant to 10 CFR 50.55a(g)(5)(iii), Florida Power and Light Company (FPL) requests approval of Interim Relief Request 34, *Temporary Non-Code Repairs of ICW Class 3 Piping*. The piping is on the 2A and 2B intake cooling water (ICW) pump discharge headers. Attached is Interim Relief Request 34. The engineering disposition of the non-Code repair of ASME Class 3 ICW system piping lines I-30"-CW-11 & I-36"-CW-16 is attached to the relief request.

FPL determined that an ASME Section XI Code repair/replacement is not practical within the Technical Specification allowed outage time of the ICW system. As discussed in the relief request, the Technical Specification allowed outage time of 72 hours for the affected headers may be insufficient to accomplish a Code repair/replacement. A plant shutdown and cooldown with unnecessary cycling of facility systems and components would be required to perform a Code repair/replacement of the piping. A Code repair/replacement will be accomplished during the upcoming Unit 2 refueling outage (SL2-14) which is scheduled to start on April 21, 2003.

FPL plans to install temporary non-Code repairs on the ICW piping leaks. The repairs meet the guidelines of NRC Generic Letter 90-05. They are passive devices installed for pressure boundary integrity only, using adequate and suitable materials acceptable for system temperature and pressure. They are removable, and do not compromise the structural integrity of the piping system or associated supports.

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

Very truly yours,

  
Donald E. Jernigan  
Vice President  
St. Lucie Plant

Attachment

DEJ/GRM

A047

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**TEMPORARY NON-CODE REPAIRS OF ICW CLASS 3 PIPING**

**1. ASME Code Component(s) Affected**

ASME Class 3 Intake Cooling Water (ICW) System Piping  
Lines I-30"-CW-11 & I-36"-CW-16.

**2. Applicable Code Edition and Addenda**

Rules for Inservice Inspection of Nuclear Power Plant Components, Section XI,  
1989 Edition, No Addenda.

**3. Applicable Code Requirement**

Article IWA-4000, Repair Procedures, describes the requirements for making  
repairs in compliance with the Code.

**4. Impracticality of Compliance**

The flaws were detected during plant operation in sections of Class 3 piping that  
cannot be isolated for completing a Code repair/replacement within the time  
period permitted by the Limiting Condition for Operability (LCO) Allowed Outage  
Time (AOT) of 72 hours.

**5. Burden Caused by Compliance**

Performance of Code repairs/replacements would necessitate a plant shutdown.

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

Pursuant to 10 CFR 50.55a (g)(5)(iii), FPL requests an alternative to performing  
a Code required repair or replacement on an ICW piping leak.

FPL plans to perform temporary non-Code repairs on the ICW piping leak  
locations. These repairs meet the guidelines of NRC Generic Letter 90-05.  
Temporary repairs consist of passive devices installed for pressure boundary  
integrity only, using adequate and suitable materials acceptable for the system  
temperature and pressure. The temporary repairs are removable, and do not  
compromise the structural integrity of the piping system and its associated  
supports.

An augmented examination was performed in five susceptible areas to identify  
additional flaws within 15 days of the initial discovery. The augmented

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examinations identified one additional through-wall flaw in the opposite train. FPL then expanded its inspections and examined an additional five areas, in the most susceptible locations, based on the root cause analysis. No additional through-wall flaws were identified in the second expansion.

The attachment to this relief request provides additional detail and technical justification supporting the use of temporary non-Code repairs in this application.

Weekly plant walkdown inspections to assess degradation/ structural integrity of temporary repairs will be performed. The three month inspections to determine pipe integrity will be deferred until the refueling outage scheduled to start on April 21, 2003 when the piping will be replaced or receive Code repairs.

**7. Duration of Proposed Alternative**

The temporary non-Code repairs devices will be installed as interim measures in accordance with the guidelines of NRC Generic Letter 90-05. They will remain in place until the next St. Lucie Unit 2 refueling outage, currently scheduled to begin April 21, 2003. During that outage FPL will perform a Code repair/replacement.

The augmented examinations have been completed.

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**Background:**

While conducting inspections of ICW pump 2A discharge line I-36"-CW-16 and ICW pump 2B discharge line I-30"-CW-11 for potential corrosive degradation, through-wall flaws were detected. The through-wall flaw locations and wall thinning detected have been mapped such that an appropriate evaluation could be conducted by Engineering in accordance with the guidelines in NRC Generic Letter (GL) 90-05, *Guidance for Performing Temporary Non-Code Repair of ASME Class 1, 2 and 3 Piping*. The Initial Operability Assessment for the above conditions demonstrated that:

- The through-wall flaws have been evaluated using the guidelines delineated within GL 90-05 and were found acceptable. The wall thinning flaws are bounded by this evaluation.
- Potential inventory losses based on the as-found size of the through-wall flaws are bounded by the existing evaluation assuming a 3/4" instrument line rupture and a 100 gpm leak. The identified through-wall flaws have a negligible leak rate at this time.

**Apparent Cause:**

The piping system is located such that access to the underside for inspection, maintenance and repair is complicated and difficult, resulting in inadequate application/implementation of the coating procedures. This condition, concurrent with the harsh salt-laden environment at the Intake Structure, exacerbated the corrosion effects of the subject portions of piping. Therefore, apparent cause of the through-wall flaws and adjacent wall thinning is progressive external corrosion brought about by inadequate application of protective coatings due to the location of the piping segments (i.e., the pipe routing makes access for maintenance and repair activities problematic).

**Analysis of Problem:**

Lines I-30"-CW-11 and I-36"-CW-16 are associated with System 21 (Circulating Water - Intake Cooling Water) which is classified as Safety Related, Quality Group C.

Engineering/operability evaluations have been performed for pipe wall thickness, flaw characterization, and system leakage, and found to be acceptable. Accordingly, per the guidelines specified in NRC Generic Letter 90-05 the following should be performed:

1. Structural evaluation of the flaw (Initial Operability Assessment).
2. Weekly plant walkdown inspections to assess degradation/structural integrity of repair.
3. Augmented inspection of five susceptible locations.
4. Installation of leak mitigation devices (non-Code repairs).

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5. Submittal of Relief Request to NRR within 30 days.

1. Flaw and Structural Integrity Evaluation

The structural integrity of the flawed piping has been evaluated using the "Through-Wall Flaw" approach, and found acceptable. Accordingly the requirements of NRC GL 90-05 for flaw characterization, acceptable spacing for multiple flaws, flaw area and linear fracture mechanics criteria were met. Therefore, temporary non-Code repair is applicable, until the next scheduled refueling outage.

2. Qualitative Assessment of Leakage

In accordance with the guidance of NRC GL 90-05, the structural integrity of the temporary leak repair device shall be assessed periodically. An acceptance criterion is defined, as the leak mitigating device is structurally intact and no visual indication of operational leakage. This assessment shall be performed on a weekly basis. Operations personnel during the performance of their daily rounds will perform plant walkdown inspections. Location and details are provided to plant personnel within the corrective action documentation. This inspection is required until Code repair/replacement is performed during SL2-14.

3. Augmented Inspections

GL 90-05 requires that augmented inspections be performed within 15 days of the detection of flaws resulting in non-Code repair, to assess the overall degradation of the affected system. These inspections should include the most susceptible locations based on the root cause determination. Five additional locations require examination for moderate energy lines, as well as sample expansion should additional flaws be identified. An engineering walkdown was performed to determine areas where the "potential" for flaws existed. These areas also exhibited signs of external corrosion, and are located in areas where maintenance and repair is complicated and difficult. These locations satisfy the requirements of GL 90-05. An additional through-wall flaw was discovered on the opposite train of ICW during the first set of augmented inspections. No additional through-wall flaws were detected in the second augmented inspection scope.

4. Leak Mitigating Device

The leak mitigating devices being installed will be considered as interim measures to arrest the leakage and protect the piping from additional local corrosion. The use of temporary measures to limit operational leakage in the

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interim is consistent with the guidance specified in GL 90-05 and subsequent follow-up documentation for leak repairs on Class 3 moderate energy piping and components. In accordance with plant design specifications the affected section of ICW piping has a maximum operating pressure of 90 psig, a maximum operating temperature of 95°F, and was designed in accordance with the Class 3 requirements of ASME Section III. These pressure and temperature values are less than the 274 psig and 200°F values specified in GL 90-05, which, provides the basis to classify the subject system/components as Class 3 and moderate energy lines. Therefore, installation of a leak limiting device consisting of an epoxy sealant, covered by 16 gage stainless steel sheet metal with 1/2" stainless steel banding, has no structural significance beyond that necessary to resist the hydraulic pressure of the leak.