UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

December 16, 1992

Docket No. 50-302

Mr. Percy M. Beard, Jr.
Senior Vice President,
Nuclear Operations
Florida Power Corporation
ATTN: Manager, Nuclear Operations
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P.O. Box 219-NA-2I
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Dear Mr. Beard:

SUBJECT: MINOR LEAKS IN MODERATE ENERGY PIPING SYSTEMS - GENERIC LETTER 90-05 (TAC NO. M83201)

By letter dated January 15, 1992, Florida Power Corporation (FPC) described an application of the provisions of Generic Letter (GL) 90-05 with intentions for future similar actions based upon your interpretation of the guidance in the GL. We have reviewed your conformance to the guidance of GL 90-05, and find your application of the technical provisions (engineering, operational) generally acceptable, but take exception to your interpretation and application of the regulatory issues.

The specific application of the GL involved the discovery and temporary repair of a leak in a raw water (RW) services pipe spool at Crystal River Unit 3 (CR-3) during 1991. This line is classified as a moderate energy ASME Code Class 3 pipe. During unit operation a leak was discovered in a 2-inch NPS pipe spool which is a branch connection off a 20-inch RW line. Visual examination determined the leak to be a through-wall pinhole, later verified to be due to a corrosion pit at a holiday in the urethane lining of the pipe. FPC appears to have properly applied the technical guidance of the GL: impracticality determination, root cause determination, flaw characterization, flaw evaluation, structural integrity assessment, augmented inspection, surveillance plan, application of a reversible leak-limiting measure, and finally, a Code-qualified repair 2 months later during a mid-cycle outage.

While it appears that your staff has a good grasp of the technical issues, we find your regulatory positions to be inconsistent with 10 CFR 50.55a and with the guidance provided in GL 90-05.

When the through-wall leak occurred in ASME Code class piping, FPC should have requested relief from the requirements of 10 CFR 50.55a(g)(4): "Throughout the service life of a boiling or pressurized water-cooled nuclear power facility, components (including supports) which are classified as ASME Code Class 1, Class 2, and Class 3 shall

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meet the requirements, except the design and access provisions and preservice examination requirements, set forth in Section XI of editions of the ASME Boiler and Pressure Vessel Code and Addenda that become effective subsequent to editions specified in paragraphs (g)(2) and (g)(3) of this section and are incorporated by reference in paragraph (b) of this section, to the extent practical within the limitations of design, geometry and materials of construction of the components." Crystal River Unit 3 is currently required to meet the ASME Boiler and Pressure Vessel Code, Section XI, 1983 edition with the 1983 Summer addenda. When a licensee finds a degraded component, it must promptly determine its operability. For piping, this is done by assessing its structural integrity. For the 2-inch RW system piping in question, allowable indication sizes for ferritic steel piping are specified in IWD/IWB-3000, "Acceptance Standards for Flaw Indications," paragraph IWB-3514.2, Table IWB-3514-1. The through-wall flaw causing the leak is, of course, an indication with an a/t % exceeding 14.4; therefore, ASME structural integrity requirements are not satisfied and the component is not satisfactory for continued service. Using special analytical methods, ASME XI and ASME XI Code cases permit evaluation of both planar and non-planar flaws to a maximum depth of about 75 percent through-wall.

The staff recognized that these criteria may be stringent and provided guidance in GLs 90-05 and 91-18 to provide relief for moderate energy Class 3 systems. In particular, GL 91-18 allows moderate energy ASME Code Class 3 piping to be considered degraded but operable by the licensee if the criteria in GL 90-05 are satisfied. This allows the licensee time to prepare and submit a relief without creating an urgent operability situation.

GL 90-05 specifically addresses the frequently encountered flaws of the type seen in RW or service water systems in operating plants and provides for relief under temporary, alternative analytical and acceptance criteria. However, application of the GL (or any other temporary, non-Code measure) requires specific relief from the requirements of 10 CFR 50.55a and ASME Code Section XI by the NRC. This is clearly and unambiguously stated in the first paragraph of page 1 of the introduction to GL 90-05: "The staff continues to find temporary non-Code repairs of Code Class 1, 2, and 3 piping unacceptable without specific written relief granted by the NRC. However, this generic letter provides guidance that will be considered by the NRC staff in evaluating relief requests submitted by licensees for temporary non-Code repairs of Code Class 3 piping." This position originates from 10 CFR 50.55a(g)(6)(i) which states: "The Commission will evaluate determinations under paragraph (g)(5) of this section that Code requirements are impractical. The Commission may grant relief and may impose such alternative requirements as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in

the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility."

There is no basis for a licensee's failure to request relief when the provisions of 10 CFR 50.55a(g)(6)(i) are considered. Licensees are obligated to request relief when compliance with the regulations and the ASME Code is not met when the plant is operating.

Clearly, FPC did not request relief from 10 CFR 50.55a with respect to the temporary repair at Crystal River Unit 3. The same situation would exist in future cases if the proposed revision to the CR-3 Repair and Replacement Program is carried out as stated on the last page of your January 15, 1992 letter: "This revision would document FPC's intent to employ appropriate stopgap measures without seeking relief for minor leaks. Formal relief will be sought only in those cases when a Code repair would not be performed at the next appropriate opportunity" [emphasis added]. Under the provisions of the cited sections of 10 CFR 50.55a and the guidance in GL 90-05, the staff finds this position regarding relief requests unacceptable.

In the area of technical concerns, your letter notes that some confusion exists with regard to application of stopgap measures while going through the relief process, and the application of leak-limiting measures as part of the temporary repair. The application of stopgap measures to reduce leakage is permitted provided that an engineering evaluation of the flawed pipe demonstrates that safe operating margins exist. The stopgap measure must be reversible so as to allow removal if required. The reversible requirement precludes measures such as welding which may exacerbate the flaw (such as by destroying a pipe lining) or any mechanical clamping devices that could deform the piping.

The subsequent "temporary repair" that follows in the relief process under GL 90-05 may include a repair, but is primarily a systematic engineering evaluation of the flaw. The steps include root cause analysis, flaw evaluation, operating system assessments, augmented inspections, and periodic monitoring and reinspections. The stopgap measure may become a part of the temporary repair, but its purpose is usually only for housekeeping reasons. Containing the leak is not required beyond reasons of housekeeping or system flow considerations or equipment flooding issues, except inside containment. A leak-limiting (or stopgap) measure has no structural significance beyond that necessary to resist the hydraulic pressure of the leak. Leak-limiting (or stopgap) measures may consist of a rubber patch and a hose clamp. If the loss of flow is insignificant, the pipe may be left as is.

The crux of GL 90-05 is in demonstrating structural stability at the flaw(s) and monitoring them to ensure that safe operating margins will be maintained until such time as a Code repair can be made. Should the analysis reveal unacceptable flaw size or growth (or other adverse system impacts), an immediate unit shutdown and Code repair is required.

The staff position discourages application of haphazard, non-engineered "fixes" to operating systems and minimizes unnecessary challenges to plant equipment and to plant personnel from a ruptured pipe. Note also that acceptance criteria for structural clamps with load bearing capability beyond that needed for hydraulic forces are outside the scope of GL 90-05 and require staff evaluation on a case by case basis.

Sincerely,
(Original Signed By)

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