Florida Power
A Progress Energy Company

Crystal River Unit 3
Docket No. 50-302
Operating License No. DPR-72

Ref: 10 CFR 50.90

July 16, 2001
3F0701-09

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Crystal River Unit 3 - Response to NRC Request for Additional Information Re: Proposed License Amendment Request #267, Revision 2, "Containment Leakage Rate Testing Program" (TAC No. MB1349)

Reference:
1. NRC to FPC letter, 3N0701-03, dated July 6, 2001, "Crystal River Unit 3 – Request for Additional Information Re: Proposed License Amendment Request No. 267, Revision 2, Containment Leakage Rate Testing Program (TAC No. MB1349)
2. FPC to NRC letter, 3F0601-06, dated June 20, 2001, "License Amendment Request #267, Revision 2, Containment Leakage Rate Testing Program

Dear Sir:

Florida Power Corporation (FPC) hereby submits the response to the NRC request for additional information (RAI) forwarded by Reference 1. In Reference 2, FPC requested a one-time increase in the Containment Leakage Rate Testing interval.

This letter establishes no new regulatory commitments.

If you have any questions regarding this submittal, please contact Mr. Sid Powell, Supervisor, Licensing and Regulatory Programs at (352) 563-4883.

Sincerely,

Daniel L. Roderick
Plant General Manager
Crystal River Unit 3

A017

DLR/rmb

Attachment: Response to NRC Request for Additional Information

xc: Regional Administrator, Region II
Senior Resident Inspector
NRR Project Manager

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50 - 302 / LICENSE NUMBER DPR - 72

ATTACHMENT

LICENSE AMENDMENT REQUEST #267, REVISION 2
Containment Leakage Rate Testing Program

Response to NRC Request for Additional Information

Response to NRC Request for Additional Information

Because the containment inservice inspection (ISI) requirements of Title 10, Code of Federal Regulations, Section 50.55a, and leak rate testing requirements of Option B of Appendix J complement each other in ensuring the leak-tightness and structural integrity of the containment, the staff needs the following information to complete its review of the license amendment request.

1. **NRC Request**

None of the references describe (or summarize) the containment ISI program being implemented at CR-3. Please provide a description of the ISI methods that provide assurance that in the absence of an ILRT for 15 years, the containment structural and leak-tight integrity will be maintained.

FPC Response

Florida Power Corporation (FPC) submitted Revision 0 of License Request #267 on March 7, 2001 (3F0301-05). In Attachment A, the Evaluation of Request Section, (page 2 of 3), FPC states "The [Crystal River – Unit 3] CR-3 reactor containment building will continue to be inspected under the requirements of ASME Section XI Subsections IWE and IWL. The existing Type B and C containment penetration testing program and the existing containment tendon testing program will continue to be performed in accordance with previous regulatory approvals."

The containment ISI program being implemented at CR-3 is described in the following:

1. **FPC to NRC letter, 3F0598-11, dated May 4, 1998, submitted the ASME Section XI Inservice Inspection Program and Ten-Year Non-Destructive Examination Program, Revision 0, Tables IWE-2500-1 and IWL-2500-1.**

2. **FPC to NRC letter, 3F1198-15, dated November 30, 1998, submitted the ASME Section XI Inservice Inspection Program and Ten-Year Non-Destructive Examination Program, Revision 1, Tables IWE-2500-1 and IWL-2500-1.**

3. **The NRC approved the Third 10-Year ISI Program on January 22, 1999 (TAC No. MA1794) (3N0199-10).**

2. NRC Request

Based on its review of the relief requests for CR-3 containment, the staff understands that CR-3 is using the 1992 Edition and the 1992 Addenda of Subsections IWE and IWL of the American Society of Mechanical Engineers Section XI Code (the Code). IWE-1240 requires licensees to identify the surface areas requiring augmented examinations. Please provide the locations of the containment liner surfaces which CR-3 have identified as requiring augmented examination and a summary of findings of the examinations performed.

FPC Response

IWE-1240 requires areas that are likely to experience accelerated degradation and aging be classified as Examination Category E-C and meet the examination requirements identified in Table IWE-2500-1. Based on the results of the first period general visual examinations performed in the Refuel 11 Outage (Fall 1999), CR-3 has not classified any areas as Examination Category E-C.

3. NRC Request

For the examination of seals and gaskets, and examination and testing of bolts associated with the primary containment pressure boundary (Examination Categories E-D and E-G), CR-3 had requested relief from the requirements of the Code. As an alternative, CR-3 plans to examine them during the leak rate testing of the primary containment. With the flexibility provided in Option B of Appendix J for Type B and Type C testing (as per Nuclear Energy Institute 94-01 and Regulatory Guide 1.163), and the extension requested in this amendment for Type A testing, please provide your schedule for examination and testing of seals, gaskets, and bolts that provide assurance regarding the integrity of the containment pressure boundary.

FPC Response

ISI Relief Request 98-012-II for seals and gaskets and ISI Relief Request 98-018-II for examination and testing of bolting were submitted to the NRC on November 30, 1998 (3F1198-21). The NRC approved these relief requests on October 4, 1999 (TAC No. MA4343) (3N1099-04).

As documented in FPC to NRC letter dated April 16, 1998 (3F0498-03), the third ISI ten-year inspection interval began on August 14, 1998 (and will end on August 13, 2008).

As stated in both relief requests, the alternate examinations of Appendix J Type B testing will be performed at least once during each Containment Inspection interval. Thus, the extension requested for Type A testing does not affect the frequency of these alternate examinations in that they will be performed once in the Third Ten-Year Inspection Interval.

NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," Revision 0, provides the Type B testing frequencies in paragraphs 10.2.1 and 10.2.2. The extended test interval for Type B penetrations (except containment airlocks) is a maximum of once per 120 months. The test frequency for containment airlocks, door seals, and penetrations with resilient seals are to be tested at a frequency of once per 30 months.

CR-3 Improved Technical Specifications (ITS) 5.6.2.20 states that the Appendix J Containment Leakage Rate Testing Program will be implemented in accordance with the guidelines in Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak Test Program," September 1995. This RG endorses NEI 94-01 for providing the acceptable methods of implementing Option B of Appendix J.

The extension of the interval for conducting the ILRT will not modify the schedule for completion of any other examination or test.

4. NRC Request

The stainless steel bellows have been found to be susceptible to trans-granular stress corrosion cracking, and the leakages through them are not readily detectable by Type B testing (see Information Notice 92-20). If applicable, please provide information regarding inspection and testing of the bellows at CR-3, and how such behavior has been factored into the risk assessment.

FPC Response

NRC Information Notice 92-20, Inadequate Local Leak Rate Testing, discussed the inadequate local leak rate testing of two-ply stainless steel bellows. CR-3 has no such bellows that act as part of the containment boundary.

5. NRC Request

Inspections of some reinforced and steel containments have found degradation on the un-inspectable (embedded) side of the drywell steel shell and steel liner of the primary containment. These degradations cannot be found by visual (i.e., VT-3 or VT-1) examinations unless they are through the thickness of the shell or liner; or 100% of the un-inspectable surfaces are periodically examined by ultrasonic testing. Please provide information addressing how potential leakages under high pressures during core-damage accidents are factored into the risk assessment related to the extension of the ILRT.

FPC Response

The potential for containment leakage is explicitly included in the risk assessment. By definition, the intact containment cases (EPRI Containment Failure Class 1) include a leakage term, which is independent of the source of the leak. Reference 2 also includes specific containment failure classes due to extending the ILRT interval

(Classes 3a and 3b). These classes include the potential that the leakage is due to a liner failure. The assessment shows that even with the increased potential to have an undetected containment flaw or leak path, the increase in risk is insignificant.

The CR-3 Individual Plant Examination (IPE) was submitted to the NRC on March 9, 1993 (3F0393-03) and approved by the NRC on June 30, 1998 (TAC No. M74401) (3N0698-20). Section 4.4 examined and evaluated the containment failure mode analysis results and developed integrated containment failure probability distributions. The analysis identified seven failure locations, which would result in a large leak area, and quantified the expected failure pressure of each location for use in the IPE. This analysis was then utilized in the development of the IPE source terms. The IPE source terms were utilized as input to the Generic Level 3 Probabilistic Risk Assessment for CR-3 (BAW-2369) submitted to the NRC on April 25, 2001, in FPC to NRC letter 3F0401-11, as Attachment C. The doses from this assessment were utilized in the FPC Calculation F-01-0001, Revision 2, Evaluation of Risk Significance of ILRT Extension, submitted to the NRC in Reference 2.

In the NRC Public Meeting on July 12, 2001, to discuss the extension of integrated leakage rate test intervals, this request was widely discussed. As a result of these discussions, the NRC will re-phrase the request to more fully expand on the needed response. FPC will respond as necessary to a re-phrased request.