Progress Energy

Crystal River Nuclear Plant
Docket No 50-302
Operating License No DPR-72

April 15, 2003
3F0403-05

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

Subject: Crystal River Unit 3 - Completion of the Large Bore Piping Program, Focused Approach

Dear Sir:

The purpose of this letter is to inform the NRC of the completion of the Modified Large Bore Piping Program (Focused Approach) implemented at Crystal River Unit 3 (CR-3) to re-validate the design code and licensing basis of large bore safety-related piping at CR-3.

The Focused Approach was discussed during a meeting held between the NRC staff and representatives of Progress Energy Florida, Inc. (Florida Power Corporation) on September 27, 1999. A written description of the approach was provided to the NRC by letter dated December 13, 1999, "Modified Large Bore Piping Project Description and Withdrawal of the Commitment for Performing Reactor Coolant System Class 1 Attachment Piping Fatigue Analysis."

The attachment to this submittal provides a background summary of the development of the program into the Focused Approach, the accomplishments of the program and provides closure to the commitments made to implement a Large Bore Piping Project.

This submittal is requesting no action from the NRC. Licensee Event Report (LER) 50-302/97-040-00, Inadequate Engineering Documentation for Safety-Related Large Bore Piping Analysis and Pipe Supports, identified the issue at CR-3. The LER was closed in NRC Integrated Inspection Report 50-302/98-07 dated August 31, 1998.

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,

James H. Terry
Engineering Manager

JHT/lvc

Attachment

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

IE22

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PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302/LICENSE NUMBER DPR-72

ATTACHMENT

Background

In mid-1996, Crystal River Unit 3 (CR-3) identified concerns regarding the adequacy of the engineering documentation to support the qualification of the large bore safety-related piping analysis and pipe supports (Reference 1). These concerns were evaluated by an independent reviewer, Wais and Associates, Inc., who performed a review of existing support and piping analysis calculations as well as a plant inspection of piping and supports. The report, generated at the conclusion of the review, identified several issues that were potential safety concerns. In 1997, the results of the review and report were entered into the CR-3 Corrective Action Program as Precursor Card (PC) 97-0048. An evaluation of the suspected Design Bases discrepancies was subsequently performed. This evaluation determined the large bore piping systems were capable of performing their safety function despite the concerns discussed in the PC. Due to the generic aspects of the issues, a voluntary Licensee Event Report, (LER 97-040-00 (Reference 2), was prepared.

The LER documented the concerns and the assessment of the ability to perform the required safety function as discussed above. With that LER and subsequent correspondence, CR-3 committed to a "... comprehensive and rigorous inspection, revalidation and/or re-qualification of CR-3 safety-related large bore piping and pipe supports...," (References 2 and 3). The LER was closed by the NRC in Reference 5. The revalidation commitment and effort continued, but was modified and redirected as a "focused approach." The changes were discussed in a meeting with the NRC staff on September 27, 1999, as documented in Reference 6. A written description of the approach discussed during that meeting was provided in Reference 7. The expectation of the Focused Approach was to: identify all the known issues, categorize the issues, address the issues through evaluation or analysis and identify and fix the outliers. This was to be accomplished with the application of a two-phase focused approach to the large bore piping issue.

Large Bore Piping Program (Focused Approach)

The first phase consisted of the evaluation of all identified issues to determine if they represented a deviation from the CR-3 licensing basis. To accomplish this, the focused approach developed a listing of the issues identified with the original external review. The list also included issues identified during other independent assessments and during the development of the re-qualification calculations performed prior to the transition to the focused approach. The final listing included 51 areas of concern; some were considered to be of very small significance but were included for completeness. With the issues identified and listed, the focused approach evaluated each of those issues in an effort to determine if it represented a potential deviation from the CR-3 licensing basis. These assessments were documented in a set of "Engineering Evaluations."

With the completion of the first phase evaluations, the Focused Approach was able to conclude the majority of the issues did not represent deviations from the licensing basis. However, the first phase evaluations identified issues which required in depth assessment in order to establish compliance with the licensing basis. These issues were addressed as part of the second phase of the Focused Approach.

The second phase performed a detailed evaluation of the licensing basis issues that were identified during the first phase. These assessments involved the development of improved

technical / licensing basis justification or analysis packages. These analyses either addressed an issue generically or evaluated every specific example of an issue. If an issue could not be resolved with a generic technical assessment, all the piping systems, containing that attribute of concern, were re-qualified. This necessitated reviews of existing piping analyses and support drawings to identify all specific examples of a given issue. With the completion of the analyses, all identified licensing basis concerns had been evaluated and non-conforming supports and/or piping segments were identified. Each non-conformance was evaluated for operability, in accordance with Generic Letter 91-18, and determined to be operable. As the non-conformances were identified, they were entered in to the CR-3 Corrective Action Program and corrective actions are underway.

Conclusion

All the areas of concern, identified with the LER and subsequent developmental activities, have been reconciled to the plant licensing basis. The evaluations, combined with the analyses efforts, provide documentation supporting CR-3's piping and pipe support compliance with design and licensing basis. The Focused Approach engineering evaluations and issue closure were documented in a summary calculation (Reference 8). The summary calculation, with the licensing basis documentation and the individual calculations, prepared during the Focused Approach, provide a retrievable source for validation of piping system compliance.

References

1. FPC to NRC letter, 3F1197-36, dated November 10, 1997, Additional Information for SSFI Items. SSFI dated October 6, 1997 through October 24, 1997, NRC Inspection No. 50-302/97-14

2. FPC to NRC letter, 3F1297-23, dated December 4, 1997, Licensee Event Report (LER) 50-302/97-040-00: Inadequate Engineering Documentation for Safety-Related Large Bore Analysis and Pipe Supports

3. FPC to NRC letter, 3F1297-36, dated December 18, 1997, Large Bore Piping and Pipe Support Calculations – Response to NRC Request for Additional Information (TAC No. M99948)

4 FPC to NRC letter, 3F0298-09, dated February 9, 1998, Non-Restart Follow-up Items

5. NRC to FPC letter, 3N0898-11, dated August 31, 1998, NRC Integrated Inspection Report 50-302/98-07

6. NRC to FPC letter, 3N1099-11, dated October 15, 1999, Summary of Meeting on September 27, 1999, Concerning Crystal River Unit 3 Large Bore Piping Project

7. FPC to NRC letter, 3F1299-03, dated December 13, 1999, Modified Large Bore Piping Project Description and Withdrawal of the Commitment for Performing Reactor Coolant System Class 1 Attachment Piping Fatigue Analysis

8. FPC Calculation S02-0017, Revision 0, Resolution Of The Large Bore Piping Program, Focused Approach