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

August 20, 1999
3F0899-05

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

Subject: Crystal River 3 – Response to Request for Additional Information – Once Through Steam Generator Alternate Repair Criteria (TAC No. MA5395)

Reference:

1. NRC to FPC Letter, 3N0799-06, dated July 16, 1999, "Crystal River Unit 3 – Request for Additional Information – Once Through Steam Generator Alternate Repair Criteria (TAC No. MA5395)"
2. FPC to NRC Letter, 3F0599-02, dated May 5, 1999, "License Amendment Request #249, Revision 0, Once Through Steam Generator Tube Surveillance Program, Alternate Repair Criteria for Axial Tube End Crack Indications"
3. FPC to NRC Letter, 3F0599-21, dated May 28, 1999, "License Amendment Request #249, Revision 0, "Once Through Steam Generator Tube Surveillance Program (TAC No. MA5395), Addendum to Babcock & Wilcox Owners Group Topical Report BAW-2346P"

Dear Sir:

This letter serves to provide the Florida Power Corporation (FPC) response to a Request for Additional Information (RAI) from the NRC (Reference 1) regarding our proposed alternate repair criteria (ARC) for axial tube end crack-like (TEC) indications in the Crystal River Unit 3 (CR-3) Once Through Steam Generators (References 2 and 3). The response is provided in Attachment A.

Those changes to the Improved Technical Specifications discussed in Attachment A will follow in a separate submittal. Attachment B provides a list of regulatory commitments.

A001

If you have any questions regarding this submittal, please contact Mr. Sid Powell, Manager, Nuclear Licensing at (352) 563-4883.

Sincerely,

D. L. Roderick
Director, Nuclear Engineering & Projects

DLR/gko

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

Attachments:
A. Crystal River Unit 3 - Response to Request for Additional Information - Once Through Steam Generator (OTSG) Alternate Repair Criteria (ARC) (TAC No. MA5395)

B. List of Regulatory Commitments

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302/LICENSE NUMBER DPR-72

ATTACHMENT A

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION – ONCE THROUGH STEAM GENERATOR (OTSG) ALTERNATE REPAIR CRITERIA (ARC) (TAC NO. MA5395)

ATTACHMENT A

Crystal River Unit 3 – Response to Request for Additional Information – Once Through Steam Generator (OTSG) Alternate Repair Criteria (ARC) (TAC No. MA5395)

QUESTIONS ON THE MAY 5, 1999 LETTER (Reference 3)

NRC Request 1

1. Improved Technical Specification (ITS) 5.6.2.10.2.f - It is stated that tube ends with axial tube end crack-like (TEC) indications will be inspected using the motorized rotating coil during each subsequent inspection. The ITS wording does not state that other tube ends will be inspected with rotating coil during subsequent inspections. Please clarify. In addition, please revise the proposed ITS to address sample inspections and sample expansion of tube ends not identified in previous inspections.

Response 1

The proposed ITS states that 100% of tubes left in-service with TEC indications will be inspected every refueling outage. This inspection will be performed with a motorized rotating coil. In addition to inspecting tubes with known TEC, FPC is inspecting 100% of the upper roll transitions of the upper tubesheets of both Once Through Steam Generators (OTSGs) during Refueling Outage 11 (11R).

Inspections subsequent to 11R will include both a 100% inspection of tubes with known TEC and a 20% sample of inservice tube ends with no previously identified TEC with a motorized rotating coil eddy current technique. If more than 1% of the tubes in the 20% sample are determined to be defective, then 100% of the tube ends in the applicable OTSG shall be examined. Tubes containing axial TEC indications that meet the alternate repair criteria (ARC) shall be added to the existing list of TEC for future inspections.

Tubes that meet the alternate repair criteria will not be counted when calculating the inspection category during the 11R OTSG inservice inspection and subsequent OTSG inservice inspections.

The first two (2) paragraphs of proposed ITS *5.6.2.10.2.f* (Reference 3) will be revised to read as follows:

> **Tubes in-service with axially oriented tube end cracks (TEC) are identified in the OTSG Inservice Inspection Surveillance procedure. The portion of the tube with the axial TEC must be inspected using the motorized rotating coil eddy current technique during each**

> **subsequent inspection. No credit is to be taken for this inspection for meeting the minimum sample size requirement for random sample inspection.**
>
> **Tubes identified with TEC that meet the alternate repair criteria will be added to the existing list of tubes in the Inservice Inspection Surveillance procedure. Tubes identified with TEC which meet the criteria to remain in-service will not be included when calculating the inspection category of the OTSG.**
>
> **The inspection data for tubes with axially oriented TEC indications shall be compared to the previous inspection data to monitor the indications for growth.**

The remaining text of proposed ITS 5.6.2.10.2.f (Reference 3) is unchanged (except editorially as noted in Response 2 below) and is provided for clarity:

> **Tubes with axially oriented TEC may be left in-service using the method described in Topical Report BAW-2346P, Revision 0, provided the combined projected leakage from all primary-to-secondary leakage, including axial TEC indications left in-service, does not exceed the Main Steam Line Break (MSLB) accident leakage limit of one gallon per minute, minus 150 gallons per day, per OTSG.**
>
> **If the plant is required to shut down due to primary-to-secondary leakage and the cause is determined to be degradation of the TEC portion of the tubes, 100% of the tubes with TEC in that OTSG shall be examined in the location of the TEC. If more than 1% of the examined tubes are defective tubes, 100% of the tubes with TEC in the other OTSG shall be examined in the location of the TEC.**
>
> **Tubes with crack-like indications within the carbon steel portion of the tubesheet shall be repaired or removed from service using the appropriate approved method. Tubes with circumferentially oriented TEC or volumetric indications within the Inconel clad region of the tubesheet shall be repaired or removed from service using the appropriate approved method.**

Additionally, ITS 5.6.2.10.2 will be revised to clarify that only tubes with TEC indications which are identified after the 1997 inspection and do not meet the criteria to remain in-service will be included in the calculation of the inspection results category. This clarification is appropriate for the known TEC since it provides a one-time allowance for tubes with known axial and circumferential TEC indications to be dispositioned without affecting the 1999 results classification or the length of Fuel

Cycle 12. The ITS 5.6.2.10.2 will be revised to add the following note (prior to the definitions of inspection categories):

-- NOTE --

For the inspection conducted in accordance with 5.6.2.10.2.f, only tubes with TEC indications identified after the 1997 inspection that do not meet the criteria to remain in-service will be included in the below percentage calculations.

This note ensures that all new TEC indications identified during the 1999 and subsequent inspections that do not meet the alternate repair criteria to remain in service will be included when calculating the inspection results classification. This note also permits the disposition of indications identified during the 1997 inspection without affecting the 1999 results classification.

If TEC indications identified during the 1997 inspection are included in the 1999 results classification, the most significant outcome would be a C-3 inspection results classification for the upper tubesheet. Under current ITS requirements, a C-3 results classification would require that 100% of the upper roll transitions in the affected steam generator and up to 100% of the upper roll transitions in the other steam generator be inspected. Additionally, the provisions of ITS 5.6.2.10.3.b would result in a reduction in the maximum allowed operating interval from 24 months to 20 months for Fuel Cycle 12 until subsequent inspection demonstrates that a third sample inspection is not required.

Since 100% of the upper roll transitions in both OTSGs will be inspected during 11R, all the sample expansion provisions that would result from a C-3 classification of the 1999 inspection have already been met by the planned inspection scope. Additionally, the 11R inspection will constitute the second consecutive 100% inspection of the upper tube ends and will permit confirmation that previously observed TEC indications have not progressed. All TEC identified will be dispositioned by either adding the affected tubes to the list of TEC tubes acceptable to remain in-service or the tubes will be plugged or repaired by the re-roll process.

Operational assessments were previously performed for TEC indications and were summarized in Reference 6. The operational assessments demonstrated the acceptability of operation during Fuel Cycle 11 with tubes having known TEC in-service. A condition monitoring assessment and operational assessment will be performed again after the 11R inspection to confirm the validity of the Fuel Cycle 11 Operational Assessment and demonstrate the acceptability of operation during Fuel Cycle 12 with TEC in-service. Use of a more performance-based approach to demonstrate the acceptable length of operation during Fuel Cycle 12 with TEC in-service eliminates the need for the prescriptive interval length that would be applied under the provisions of ITS 5.6.2.10.3.b if the results classification was determined to be C-3.

Therefore, the addition of the proposed note to ITS 5.6.2.10.2 will ensure tubes with new TEC indications that do not meet the criteria to remain in service will be included in the inspection results calculation. Including these indications in the inspection results calculation will accurately reflect any change in the condition of the steam generators since the last inspection and will ensure the calculation is not biased by including known TEC previously evaluated as acceptable to remain in service.

NRC Request 2

2. ITS 5.6.2.10.2.f – BAW-2346P is referenced in the ITS without the associated revision number. On the cover page of the May 5, 1999 letter, the licensee referenced BAW-2346P, Revision 0. The revision number, Revision 0, needs to be included in the ITS.

Response 2

FPC will revise proposed ITS Section 5.6.2.10.2.f (Reference 3) to add the revision level to the referenced Topical Report BAW-2346P. The first sentence of the third paragraph in proposed ITS Section 5.6.10.2.f will be revised to read as follows:

> **Tubes with axially oriented TEC may be left in-service using the method described in Topical Report BAW-2346P, Revision 0, provided...**

NRC Request 3

3. ITS 5.6.2.10.4.a.11 - It is stated that axial TEC indications acceptable for continued service must be such that the major dimension is within 45 degrees of the vertical axis of the tube. BAW-2346P did not discuss how the 45 degree flaw angle is determined by the eddy current technique. Describe the eddy current method and associated qualification tests in determining the 45 flaw degrees of the vertical axis.

Response 3

The definition of axial TEC indications and the reference to the 45 degree angle was added to the ITS to state the capability of the Plus Point probe to discern between mainly axially-oriented and mainly circumferentially-oriented indications. There are no 45 degree TEC indications. TEC indications are either axial or horizontal. FPC will revise the proposed ITS Section 5.6.2.10.4.a.11 (Reference 3) deleting the words:

Axial TEC indications are those indications whose major dimension is within 45 degrees of the vertical axis of the tube.

Note that incorporation of ITS 5.6.2.10.4.a.11 approved as part of Amendment No. 180 (Reference 5) will cause this proposed ITS to be renumbered. The new proposed ITS 5.6.2.10.4.a.12 will read as follows:

12. Tube End Cracks (TEC) are those crack-like eddy current indications, circumferentially and/or axially oriented, that are within the Inconel clad region of the primary face of the upper and lower tubesheets, but do not extend into the carbon steel-to Inconel clad interface.

QUESTIONS ON BAW-2346P, APRIL 1999

NRC Request 4

4. Pages 79-83, TEC Growth Assessment - (1) On page 80, it is stated that a positive number in Figures 9-3 and 9-4 represents apparent crack growth. Explain the negative growth values in those figures and causes for the negative growth values. (2) Clarify whether negative growth rates were used in calculating the mean growth rate and the basis for using negative values. (3) Framatome calculated an average growth rate of 0.01 inches per [effective full power years] EFPY for steam generator "A". However, the maximum growth rate in the growth data is 0.06 inch as shown in Figure 9-3. Provide the basis for not using a bounding growth rate. (4) If the average growth rate is found to be positive, the licensee needs to assess the impact of the growth rate distribution on the alternate repair criteria methodology. Please provide appropriate reporting requirements in the proposed ITS for such assessments.

Response 4

(1) Growth value variations are attributed to eddy current technique (ECT) uncertainties and human performance variability since this mechanism is believed to be non-active. The growth variations represent relative TEC measurements of the flaw tip to the clad-carbon steel interface (CCI) compared between two separate outages, using the same set-up. The negative tail of the distribution is a direct indicator of the fluctuation associated with ECT (the flaws do not heal). However, the negative values must be considered when calculating the average apparent growth. This is necessary to offset similar ECT uncertainties observed with the positive tail. The symmetrical normal distribution illustrates the affect of the uncertainties on both

sides. The ECT uncertainties do not affect the capability to locate the CCI, which is an absolute reference point for growth measurement.

(2) See response 4(1) above.

(3) Based on previous inspection data, the assumption for the alternate repair criteria is that growth rate is insignificant. The symmetric distribution shows that on the average the population is not changing. FPC will be monitoring growth during the 11R inspection and subsequent outages to further verify this assumption.

(4) FPC will change ITS 5.7.2.c, approved by Amendment No. 180 (Reference 5), to provide for an assessment of growth for axial TEC indications as part of the MODE 4 Special Report. The proposed ITS 5.7.2.c will read as follows:

c. **Following each inservice inspection of steam generator (OTSG) tubes, the NRC shall be notified of the following prior to ascension into MODE 4:**

1. **Number of tubes plugged and repaired;**

2. **Crack-like indications and assessment of growth for indications in the first span;**

3. **Results of in-situ pressure testing, if performed; and**

4. **Number of tubes and axially oriented TEC indications left in-service, the projected accident leakage, and an assessment of growth for TEC indications.**

NRC Request 5

5. On page 84, it is stated that probability of detection (POD) for plus point and for pancake coil were derived based on a 90% confidence for cracks greater than 50% through-wall [TW]. Discuss the basis for using 90% confidence value for cracks greater than 50% through-wall.

Response 5

Per the topical report contained in Reference 3, the qualification of Plus Point and Pancake Coil for detection is based on Appendix H of the EPRI Steam Generator Examination Guidelines, Revision 5 (Reference 1). A minimum POD of 80% at confidence level of 90% is required in the EPRI guidelines to qualify eddy current techniques. EPRI technique specification sheet ETSS #96508 (Topical Report BAW-

2346P in Reference 1) illustrates how this is achieved for a range of flaws. When the flaws greater than 50% TW are considered, all were detected (14/14). This implies a greater POD exists when 100% TW is approached, and it is expected to be close to one (1) at 100% TW. The ARC conservatively assumes all flaws are 100% TW. Therefore, the proposed POD of 0.84 at 90% confidence level is conservative.

NRC Request 6

6. The leakage from TEC indications was calculated by the licensee based on applying a 95%/50% leak rate for each TEC indication and summing these leak rates to obtain the total steam generator leak rate. In addition, these leak rates have been adjusted to reflect a POD of 0.84 evaluated at a 90% confidence level. The licensee is requested to submit information assessing the conservatism of its estimate relative to a total steam generator leak rate (POD adjusted) which is conservative with a probability of 0.95 when evaluated at the 95% confidence level.

Response 6

Florida Power Corporation submitted License Amendment Request (LAR) #249, Revision 0 (Reference 3), on May 5, 1999. LAR #249 is based on Topical Report BAW-2346P, Revision 0, which was included within that submittal, and on the Addendum to Topical Report BAW-2346P submitted on May 28, 1999 (Reference 4). Topical Report BAW-2346P documents the analysis and testing that were performed in support of the alternate repair criteria provided in Reference 3, and defines how the ARC will be implemented at the plant. The Addendum includes leak rate values based on CR-3 plant-specific Main Steam Line Break (MSLB) tube loads.

A major part of the work done in support of the ARC was leak testing of tubes with simulated tube end cracks. The leak testing itself is described in Section 6.5 of the topical report contained in Reference 3, while the method for the application of those results to determine the total steam generator leakage is described in Section 7 of the same topical report. The tube-to-tubesheet bore delta dilations and the CR-3 plant-specific MSLB accident leak rate are contained in Reference 4.

The discussion provided below addresses the approach used to apply the leak rate test results to a given tube end crack. Specifically, the basis for using a leak rate value that corresponds to a 95% confidence on the average value from the testing, rather than a 95% confidence on the 95% upper bound value, is addressed.

BAW-2346P METHODOLOGY

The leak data reported in the topical report (Reference 3) is based on testing that was performed on a mockup that consisted of a carbon steel block representing the tubesheet, into which a test tube and several surrounding tubes were installed. The mockup is described in Section 6.3 of the topical report (Reference 3). The mockup and test apparatus were designed to assure that the installed roll joints were conservatively representative of the joints installed during original generator fabrication. As described in Section 6.2 of the topical report (Reference 3), the following parameters were evaluated:

1. The tube thickness was maximized, which was shown by testing to produce a weaker joint.

2. The yield strength of the tested tube was maximized within the fabrication range, which increased leakage through the joint and decreased joint strength.

3. The tubesheet bore diameter was maximized. This minimized the strength of the tubesheet ligament, which in turn weakened the strength of the roll joint.

4. The yield strength of the tubesheet material was minimized, which was shown to weaken the joint.

5. The tubesheet cladding thickness was minimized. Testing showed that the portion of the roll adjacent to the cladding was stronger and more leak resistant, therefore minimizing the cladding produced a joint with higher leakage.

6. The tube-to-tubesheet roll installation torque was set at the minimum value that would satisfy the shop acceptance criteria, thereby minimizing the surface area contact pressure.

Thus, the fabrication tolerances and variations in each of the above parameters were evaluated in order to determine which would produce a roll joint with the lowest contact pressure, to maximize the leakage through the joint. The final mockups used for testing are therefore believed to be representative of the weakest joints installed in the steam generators. No attempt was made to take credit for the number of joints that are undoubtedly more leak tight than those tested when summing the leakage for the entire generator.

In addition, the method of simulating a TEC and the positioning of the TEC in the mockups was chosen to maximize the leakage. The TEC were simulated by 100% through-wall electric-discharge machined (EDM) notches of lengths from 0.250 inches to 0.625 inches. These notches (simulated cracks) have been shown in other tests conducted by Framatome Technologies Incorporated (FTI) and the industry to produce very conservative leak rates when compared to laboratory or field identified primary water stress corrosion cracks (PWSCC). This is due to the relative width of the EDM notch when compared with a "real" crack, and also the presence of ligaments in the PWSCC that reduce the leak path area.

Furthermore, these simulated cracks were placed on the axis of maximum tubesheet hole dilation. No credit was taken for the likely random distribution of cracks around the circumference of the tube, which is the more likely case in the steam generator. The location of some cracks nearer the axis of minimum dilation would significantly decrease the leakage through these cracks. However, the leakage calculation for the whole generator in applying the ARC assumes all cracks are on the axis of maximum dilation.

The most significant conservatism in the application of the ARC is the assumption that all TEC indications will leak during a MSLB accident. In order for the indications to leak, the indications have to be 100% TW. It is important to note that bubble testing has been performed on over three (3) thousand TEC indications at the Oconee plants and at ANO-1. Only two (2) TEC indications out of all tubes leaked during testing, indicating that in fact a very small percentage of the indications are through-wall. Not applying a probability of leak to the population of indications increases the total predicted leakage by several orders of magnitude.

STATISTICAL APPLICATION OF LEAK DATA

The Owners Group (B&WOG) considered applying a 95%/95% estimate of the leakage to every TEC indication reported in the eddy current inspection inappropriate, given the many layers of conservatism in the mockup design, testing, and application summarized above. Thus, the topical report (Reference 3) presented leak rates for a single flaw using a 95% confidence that 50% of the leak rates were greater than the stated limit.

Use of a 95%/95% leak rate value for each tube as a function of tubesheet radius gave extremely unrealistic results when applied to the data set produced during testing. This data is presented in the topical report (Reference 3) in Appendix B. The following paragraphs discuss the unrealistic conservatism that would be introduced if using a 95%/95% leak value for each tube.

Appendix B, Table B-1 of the topical report (Reference 3) lists the results for each sample and dilation condition tested. Appendix B, Table B-2, of the same topical report summarizes the statistical results, which includes a comparison of both the 95%/95% and the 95%/50% leak values for each test condition. The leak testing was conducted on five (5) samples for each EDM size and dilation. Evaluation of the raw leak rate data indicated failure to pass a statistical normality test. Transformations of the leak rates using logarithms of the raw data were necessary and were suitable for modeling with the normal distribution.

The method for determining a statistical one-sided upper tolerance limit on a normal distributed data set is to apply a multiplier, k (accounting for the confidence, population coverage and sample size), to the standard deviation and add the result to the sample average. Table B-1 of Topical Report BAW-2346P (Reference 3) shows that due to using logarithms and applying the k value for five (5) samples, the 95%/95% value is over 10,000 times the observed average value, and over 6000 times the maximum leakage value observed for this test condition. Applying the 95%/50% statistical parameters results in a leak rate almost three (3) times the average value which is considered to be sufficiently conservative given all of the conservatism that was built into the simulation.

MONTE CARLO EVALUATION OF TOTAL LEAKAGE PROBABILITY

Statistical 95%/95% one-sided upper tolerance limits have been estimated for a total OTSG leak rate under MSLB accident conditions for TEC indications (Reference 7). The methodology used to calculate 95%/95% leak rates is based on a Framatome Technologies code that implements Westinghouse-developed methods for evaluating outside diameter stress corrosion cracking (ODSCC) indications. This methodology meets the intent of Generic Letter 95-05, "Voltage-Based Repair Criteria for Westinghouse Steam Generator Tubes Affected by Outside Diameter Stress Corrosion Cracking" (Reference 8).

The following conditions/assumptions apply:

- Growth of the defects is assumed to be zero. Use of this value is conservative since the testing described in Reference 3 assumed the flaw has grown to the allowable end-of-cycle state. Therefore, leakage data is based on maximum predicted flaw at the end-of-cycle.

- Eddy current test error contributions are assumed to be zero for all sources. This is appropriate because sizing of the flaw is not part of the ARC.

- The probability of leakage (POL) for the CR-3 and Arkansas Nuclear One - Unit 1 (ANO-1) data sets was based on bubble test data from ANO, Oconee Nuclear Stations (ONS-2) and (ONS-3). As previously mentioned, these bubble tests show that two (2) TEC indications out of 3379 leaked during testing. A statistical calculation estimated that, given these conditions and using an upper one-sided confidence limit on this proportion, there is a 0.999 probability that 62 or fewer leaking TEC indications would be found in a steam generator population of 15,000 tubes. Thus, a conservative POL value of 62/3379 has been applied in the simulations (rather than 62/15,000).

- A maximum leak rate for an individual indication is set at 0.21 gpm (Reference 7). This value is a MSLB leak rate predicted through a 0.5-inch long axial crack with a crack opening diameter of 0.001-inch and is nominally representative of axial cracks. A crack opening diameter of 0.001-inch is reasonable for an OTSG tube within the tubesheet where burst is precluded by the presence of the tubesheet.

The approach used is a direct Monte Carlo simulation, which combines the uncertainties associated with the inputs and processes necessary to estimate total steam generator leak rates under the MSLB conditions assumed. This technique samples from normal probability distributions based on the logarithmic (base 10) transformation of the leak rates for each dilation category. These distributions are incorporated as a function of radial location/dilation in the tubesheet to address the leakage in each region of the generator. The results are applied repeatedly to the models to obtain a final output distribution of total OTSG leak rate. Based on this final output distribution, the 95%/95% one-sided upper tolerance limit is obtained using methods that do not require the assumption of normality.

RESULTS

The following table shows the results of the 95%/95% one-sided upper limit (OSUL) case runs:

CR-3 RESULTS

Case Description		95%/95% OSUL for leak rate [gpm]
Case 1: CR-3 SG A Intact,	POL = 62/3379	0.21
Case 2: CR-3 SG B Intact,	POL = 62/3379	0.22
Case 3: CR-3 SG A Faulted,	POL = 62/3379	0.21
Case 4: CR-3 SG B Faulted,	POL = 62/3379	0.22

CONCLUSION

The 95%/95% leak rates shown in the table above provide additional assurance that application of the leak rates provided in References 3 and 4, based on applying a 95%/50% leak rate for each TEC indication and summing these leak rates to obtain the total steam generator leak rate, is conservative.

References

1. EPRI TR-107569-V1R5, PWR Steam Generator Examination Guidelines: Revision 5, Volume 1: Requirements, Final Report.

2. Document 51-5002229-00, Babcock & Wilcox Owners Group NDE Committee, Framatome Technologies Inc., "Qualified Eddy Current Examination Techniques for Once Through Steam Generators".

3. FPC to NRC Letter, 3F0599-02, dated May 5, 1999, "License Amendment Request #249, Revision 0, Once Through Steam Generator Tube Surveillance Program, Alternate Repair Criteria for Axial Tube End Crack Indications" (includes Topical Report BAW-2346P, Revision 0).

4. FPC to NRC Letter, 3F0599-21, dated May 28, 1999, "License Amendment Request #249, Revision 0, Once Through Steam Generator Tube Surveillance Program (TAC No. MA5395), Addendum to Babcock & Wilcox Owners Group Topical Report BAW-2346P" (includes BAW-2346P, Revision 0, Addendum A).

5. NRC to FPC Letter, 3N0699-12, dated June 28, 1999, "Crystal River Unit 3 – Issuance of Amendment Regarding Repair Criteria for Steam Generator Tubing (TAC No. MA3592)".

6. FPC to NRC Letter 3F0199-04, dated January 27, 1999, "License Amendment Request #243, Revision 0, Once Through Steam Generator Tube Surveillance Program, Inspection Interval Extension".

7. FPC Calculation M-99-0072, Revision 1, Framatome Technologies, Inc. (32-5005276-01), "FPC CR-3 TEC Leak Rate Simulations".

8. GL 95-05, Generic Letter, "Voltage-based Repair Criteria for Westinghouse Steam Generator Tubes Affected by Outside Diameter Stress Corrosion Cracking", dated August 25, 1996.

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302/LICENSE NUMBER DPR-72

ATTACHMENT B

LIST OF REGULATORY COMMITMENTS

ATTACHMENT B

List of Regulatory Commitments

The following table identifies those actions committed to by Florida Power Corporation in this document. Any other actions discussed in the submittal represents intended or planned actions by Florida Power Corporation. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Manager, Nuclear Licensing, of any questions regarding this document or any associated regulatory commitments.

ID Number	Commitment	Commitment Date
3F0899-05	Submit changes to Improved Technical Specifications (ITS) and proposed ITS necessary due to response to Request for Additional Information (RAI) (3N0799-06) by September 15, 1999	September 15, 1999
3F0899-05	Revise the OTSG Inservice Inspection Surveillance Procedure to include 20% sample inspection criteria for inspections subsequent to 11R as discussed herein by September 30, 1999	September 30, 1999
3F0899-05	Perform condition monitoring assessment and operational assessment following 11R OTSG inservice inspection within 90 days following 11R restart	within 90 days following 11R restart