Progress Energy

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

Ref: 10 CFR 54

December 16, 2010
3F1210-06

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

Subject: Crystal River Unit 3 – Response to Request for Additional Information for the Review of the Crystal River Unit 3, Nuclear Generating Plant, License Renewal Application (TAC NO. ME0274) and Amendment #16

References:
(1) CR-3 to NRC letter, 3F1208-01, dated December 16, 2008, "Crystal River Unit 3 – Application for Renewal of Operating License"

(2) NRC to CR-3 letter, dated November 16, 2010, "Request for Additional Information for the Review of the Crystal River Unit 3 Nuclear Generating Plant, License Renewal Application (TAC NO. ME0274)"

(3) CR-3 to NRC letter, 3F1009-07, dated October 13, 2009, "Response to Request for Additional Information for the Review of the Crystal River Unit 3 Nuclear Generating Plant, License Renewal Application (TAC NO. ME0274)" and Amendment #5

Dear Sir:

On December 16, 2008, Florida Power Corporation (FPC), doing business as Progress Energy Florida, Inc. (PEF), requested renewal of the operating license for Crystal River Unit 3 (CR-3) to extend the term of its operating license an additional 20 years beyond the current expiration date (Reference 1). Subsequently, the Nuclear Regulatory Commission (NRC), by letter dated November 16, 2010, provided a request for additional information (RAI) concerning the CR-3 License Renewal Application (Reference 2). Enclosure 1 to this letter provides the response to Reference 2 and includes a supplemental response to the previously submitted RAI 4.3.3-2 response (Reference 3). Enclosure 2 to this letter contains Amendment #16 to the License Renewal Application (LRA). Also, the CR-3 License Renewal Commitments, updated to reflect changes made during the NRC staff's review of the LRA, are included in Enclosure 3. No new regulatory commitments are included in this letter.

If you have any questions regarding this submittal, please contact Mr. Mike Heath, Supervisor, License Renewal, at (910) 457-3487, e-mail at mike.heath@pgnmail.com.

Sincerely,

Jon A. Franke
Vice President
Crystal River Unit 3

JAF/dwh

Enclosures:
1. Response to Request for Additional Information
2. Amendment 16 Changes to the License Renewal Application
3. Crystal River Unit 3 License Renewal Commitments, Revision 3

xc: NRC CR-3 Project Manager
NRC License Renewal Project Manager
NRC Regional Administrator, Region II
Senior Resident Inspector

Progress Energy Florida, Inc.
Crystal River Nuclear Plant
15760 W. Power Line Street
Crystal River, FL 34428

A140
NRR

STATE OF FLORIDA

COUNTY OF CITRUS

Jon A. Franke states that he is the Vice President, Crystal River Nuclear Plant for Florida Power Corporation, doing business as Progress Energy Florida, Inc.; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission the information attached hereto; and that all such statements made and matters set forth therein are true and correct to the best of his knowledge, information, and belief.

Jon A. Franke
Vice President
Crystal River Nuclear Plant

The foregoing document was acknowledged before me this 16 day of December, 2010, by Jon A. Franke.

Signature of Notary Public
State of Florida

CAROLYN E. PORTMANN
Commission # DD 937553
Expires March 1, 2014
Bonded Thru Troy Fain Insurance 800-385-7019

(Print, type, or stamp Commissioned
Name of Notary Public)

Personally Known ✓ -OR- Produced Identification _____

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50 - 302 / LICENSE NUMBER DPR - 72

ENCLOSURE 1

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

REQUEST FOR ADDITIONAL INFORMATION

RAI 3.3.2.2.4-1

Background

Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants (SRP-LR) Section 3.3.2.2.4, "Cracking due to Stress Corrosion Cracking and Cyclic Loading," recommends further evaluation of stainless steel non-regenerative heat exchanger components exposed to treated borated hot water in the chemical and volume control system. The SRP-LR states that the effectiveness of the water chemistry control program should be verified to ensure cracking is not occurring. The SRP-LR also states that an acceptable verification program includes temperature and radioactivity monitoring of the shell side water, and eddy current testing of the tubes.

License renewal application (LRA) Section 3.3.2.2.4.1, stated that the Water Chemistry and One-Time Inspection programs will be used to manage cracking of the make-up and purification system letdown heat exchanger components. The LRA also stated that the One-Time Inspection Program was selected in lieu of radioactivity monitoring of the shell side water and eddy current testing of tubes.

Issue

It was unclear to the staff what inspections were being proposed in the One-Time Inspection Program in lieu of temperature and radioactivity monitoring of the shell side water and eddy current testing of the non-regenerative heat exchanger tubes. The proposed inspection could be eddy current testing of alternate component(s) in lieu of the non-regenerative heat exchanger tubes, or an alternate nondestructive examination method of the non-regenerative heat exchanger tubes or something else.

Request

Clarify what inspection activities are being proposed in the One-Time Inspection Program in lieu of temperature and radioactivity monitoring of shell side water and eddy current of the non-regenerative heat exchanger tubes.

If an alternate nondestructive examination method is being proposed in lieu of eddy-current testing of the non-regenerative heat exchanger tubes, provide plant-specific or industry operating experience to demonstrate the effectiveness of the proposed methodology.

Response:

The letdown coolers at Crystal River Unit 3 (CR-3) are Graham Heliflow heat exchangers. The cooler is a compact, counter-flow heat exchanger distinguished by the spiral form of its tube bundle. The tube bundle is formed by 30 stainless steel tubes each of which is 0.750 inches in outside diameter (OD) and approximately 60 feet long. Each tube is coiled in a shape that approximates an Archimedes spiral. The tube bundle is housed inside a seal welded shell.

This configuration does not lend itself to eddy current testing or to nondestructive internal examination.

CR-3 has experienced a total of five letdown cooler failures; the most recent occurring in 1991. The root cause of the letdown cooler tube failures was identified as flow induced vibration resulting from high cooling water flow. An examination of two of the coolers concluded that the leaks were produced by a high cycle fatigue crack that initiated at the OD surface. The susceptibility of the letdown coolers to high cycle fatigue failures was addressed as follows:

- *Revised operating procedures to lower service water flow rates.*
- *Revised the design of replacement letdown coolers.*
- *A design modification added a third letdown cooler to act as an installed spare.*

CR-3 considers that these changes were effective in resolving fatigue cracking of the letdown coolers, noting that no additional failures have occurred from 1991 to the present, a period of approximately 20 years. As discussed in the Final Safety Analysis Report (FSAR), Section 11.4.2.1.3(c), CR-3 does monitor the integrity of the Nuclear Services Closed Cycle Cooling System. If a leak from the primary side occurs, radiation monitoring equipment is provided to detect radioactivity and allow the operator to assess the magnitude of the leak. The high alarm is set at a value commensurate with plant operating activity level to alarm abnormal conditions.

Based on the previous discussion, cracking due to cyclic loading is not applicable to the letdown cooler components based on the design and operational changes implemented at CR-3. Cracking due to stress corrosion cracking remains as an applicable effect for the letdown cooler components, and is managed using the Water Chemistry Program, with verification of program effectiveness provided by the One-Time Inspection Program. The Water Chemistry Program relies on monitoring and control of water chemistry to effectively mitigate aging effects on component surfaces that are exposed to water as a process fluid. The One-Time Inspection Program is a sampling-based program that uses one-time inspections to verify the effectiveness of an aging management program. While access limitations may preempt the letdown coolers from being selected for inspection, inspections of components having similar materials and exposed to comparable environments will serve to verify the effectiveness of the Water Chemistry Program.

This Request for Additional Information (RAI) response requires an amendment to the License Renewal Application (LRA). Refer to the specific changes presented in Enclosure 2.

Supplemental Response to RAI 4.3.3-2:

Following further discussions with the NRC staff, Progress Energy Florida, Inc., (PEF) is supplementing the response to RAI 4.3.3-2 provided in PEF letter, 3F1009-07, dated October 13, 2009, by adding the following sentence to the response to Item 3 regarding loading-unloading transients:

> *The reduced cycles are tracked in the Reactor Coolant Pressure Boundary Fatigue Monitoring Program.*

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

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ENCLOSURE 2

AMENDMENT 16 CHANGES TO THE LICENSE RENEWAL APPLICATION

Amendment 16 Changes to the License Renewal Application

Source of Change	License Renewal Application Amendment 16 Changes
RAI 3.3.2.2.4-1	On LRA Page 3.3-66, in Subsection 3.3.2.2.4.1, replace the text beginning in the first paragraph with "The One-Time Inspection Program is selected in lieu of..." and ending with "applicant has demonstrated that these aging effects will be adequately managed so that the intended functions will be maintained consistent with the CLB during the period of extended operation" with the following: CR-3 has experienced a total of five letdown cooler failures; the most recent occurring in 1991. The root cause of the letdown cooler tube failures was identified as flow induced vibration resulting from high cooling water flow. An examination of two of the coolers concluded that the leaks were produced by a high cycle fatigue crack that initiated at the outside diameter surface. In addition, the tubes in the cooler move in a radial direction relative to the flow seal during service; and the interference forces resulting from this movement are directly related to the initiation of cracks at the stitch weld. The susceptibility of the letdown coolers to high cycle fatigue failures was addressed as follows: • Revised operating procedures to lower service water flow rates. • Revised the design of replacement letdown coolers. • A design modification added a third letdown cooler to act as an installed spare. Therefore, cracking due to cyclic loading is not applicable to the letdown cooler components based on the design and operational changes implemented at CR-3. Also, in LRA Table 3.3.2-42, at the top of Page 3.3-317, revise the aging management review line associated with Table 1, Item 3.3.1-07 to delete "Cracking due to Cyclic Loading" from the column entitled Aging Effect Requiring Management.
RAI 4.5.1-1	This change supplements those associated with RAI 4.5.1-1 in PEF letter to the NRC, 3F1210-03. Replace the entire LRA Subsection 4.5.1, on LRA Page 4.5-1, including tables and figures, with the following: **4.5.1 TENDON STRESS RELAXATION ANALYSIS** **Summary Description** The CR-3 Reactor Building consists of a prestressed reinforced concrete cylinder and hemispherical dome. The cylinder wall and dome roof have been provided with a post-tensioning system. The cylinder wall is prestressed utilizing a two-way post-tensioning system. The dome roof is prestressed utilizing a three-way post-tensioning system. The prestressing tendons tend to lose their prestressing forces with time due to creep and shrinkage of concrete and relaxation of the prestressing steel. Loss of tendon prestress is a Time-Limited Aging Analysis (TLAA); therefore, the adequacy of the prestressing forces is reviewed for the period of extended operation. There have been eight tendon surveillance tests since performance of the Structural Integrity Test (SIT) on November 3, 1976. Since 1997, these tests have been performed under the Inservice Inspection ASME Section XI, Subsection IWL Program. The eighth (continued)

Source of Change	License Renewal Application Amendment 16 Changes
RAI 4.5.1-1 (continued)	tendon surveillance was completed in 2007 which is approximately 31 years from the initial SIT. The Concrete Containment Tendon Prestress Program, which is part of the IWL Program, inspects a sample of tendons from each category (dome, vertical, and hoop). The Program calculates the regression analysis trend lines of these three groups based on individual tendon forces, consistent with NRC Information Notice 99-10, "Degradation of Prestressing Tendon Systems in Prestressed Concrete Containments," that is, using individual tendon data rather than averages and using all prior test data. **Analysis** The forces in randomly sampled tendons are measured periodically to verify that long-term losses are following an acceptable trend. Measurements are performed under the Concrete Containment Tendon Prestress Program, which conforms to the requirements of 10 CFR 50.55a and the ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWL 2001 Edition through the 2003 Addenda. The program is implemented through the Containment Inspection Program Manual (for IWE/IWL) and a CR-3 surveillance procedure in accordance with CR-3 Improved Technical Specification Sections and the CR-3 Final Safety Analysis Report. The acceptance criteria consist of lower limits on the forces in individual tendons and the minimum required prestressing force or value. The lower limit on the force in an individual tendon is, as specified in IWL 3221.1(b), 95% of the force predicted for the tendon at the time of the test. The predicted value or base value for individual tendons is developed accounting for prestress losses based on the guidance presented in NRC Regulatory Guide 1.35.1, "Determining Prestressing Forces for Inspection of Prestressed Concrete Containments." The requirements of IWL-3221.1(b) are followed if the measured force falls below 95% of the predicted force. As specified in IWL-3221.1(a), the average of all measured tendon forces, including those measured in IWL-3221.1(b)(2), for each type of tendon, is equal to or greater than the minimum required prestress specified at the anchorage for that type of tendon. Also, trend lines of the measured tendon force are developed. CR-3 Engineering reviews the results and trends from consecutive surveillances; and, if it is determined that the trend of prestress loss for individual tendons, or for any of the three groups of tendons is larger than expected, the cause and extent of such occurrence is determined. If this trend indicates that the resulting prestress forces will be less than the minimum required prestress forces prior to the next scheduled surveillance, then additional testing and evaluation shall be performed prior to the completion of the current surveillance to determine the cause and extent of such occurrence. The trend lines are projected through the period of extended operation. A review of the results of the 6th, 7th, and 8th tendon surveillances and subsequent evaluation indicates all tendon forces measured during the 6th, 7th and 8th surveillances were acceptable; and the prestress trend analysis determined the tendon forces would remain above the minimum force requirements well beyond the next surveillance period and through the period of extended operation. Refer to the Concrete Containment Prestress Aging Management Program operating experience described in LRA Appendix B.3.3. As a result of the hydro-demolition of the Reactor Building wall in preparation for Steam Generator Replacement in 2009, a delamination was exposed between adjacent hoop tendons within the boundaries of the temporary access opening as discussed in LRA (continued)

Source of Change	License Renewal Application Amendment 16 Changes
RAI 4.5.1-1 (continued)	Appendix B.3.3. This has affected the Concrete Containment Prestress Aging Management Program, as vertical tendons and many of the hoop tendons are to be re-tensioned to original lock-off values. For the vertical tendons and re-tensioned hoop tendons, a regression analysis cannot be performed because the historical tendon force lift-off values are no longer applicable after re-tensioning. For the vertical tendons and re-tensioned hoop tendons, end of life group mean forces were calculated by subtracting elastic shortening and time dependent losses from the 70% guaranteed ultimate tensile strength force at which the tendons are planned to be seated after re-tensioning. Time-dependent losses were used in the calculation for concrete creep, concrete shrinkage, and prestressing steel relaxation. Updated values were used for creep based on original concrete used at CR-3. For subsequent surveillances of the vertical tendons and re-tensioned hoop tendons, individual predicted tendon prestress values will be calculated in a similar manner. The regression analysis and log-linear trend plot for the re-tensioned vertical and hoop tendons are to be re-established under the Concrete Containment Tendon Prestressing Program to meet the requirements of ASME Section XI, Subsection IWL prior to the period of extended operation. **Disposition:** **10 CFR 54.21(c)(1)(iii) - The effects of aging on the intended function(s) will be adequately managed for the period of extended operation.**

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

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ENCLOSURE 3

CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS, REVISION 3

CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS, REVISION 3				
ITEM NO.	**COMMITMENT**	**FINAL SAFETY ANALYSIS REPORT (FSAR) SUPPLEMENT LOCATION**	**PROGRAM IMPLEMENTATION SCHEDULE**	**LICENSE RENEWAL APPLICATION (LRA) SOURCE**
1	In accordance with the guidance of NUREG-1801, Rev. 1, regarding aging management of reactor vessel internals components, CR-3 will: (1) participate in the industry programs for investigating and managing aging effects on reactor internals, (2) evaluate and implement the results of the industry programs as applicable to the reactor internals, and (3) upon completion of these programs, but not less than 24 months before entering the period of extended operation, submit an inspection plan for reactor internals to the NRC for review and approval.	A.1.1	As stated in the commitment	Reactor Vessel Internals Aging Management Activities LRA Section A.1.1
2	In accordance with the guidance of NUREG-1801, Rev. 1, regarding aging management of nickel alloy and nickel-clad components susceptible to primary water stress corrosion cracking, CR-3 will comply with applicable NRC Orders and will implement applicable: (1) Bulletins and Generic Letters and (2) staff-accepted industry guidelines.	A.1.1	As stated in the commitment	Primary Water Stress Corrosion Cracking of Nickel Alloys LRA Section A.1.1
3	The Program will be enhanced to select an alternate lubricant that is compatible with the fastener material and the contained fluid.	A.1.1.3	Prior to the period of extended operation	Reactor Head Closure Studs Program LRA Section B.2.3
4	The Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS) Program is a new program to be implemented. When a Safety Evaluation Report is issued for MRP-227, any required actions that affect the aging management strategy for these components will be incorporated into the program documents.	A.1.1.6	Prior to the period of extended operation	Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS) Program LRA Section B.2.6 RAI B.2.6-1

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5	Program administrative control documents will be enhanced to include: (1) guidance for torquing and closure requirements based on the EPRI documents endorsed by NUREG-1801, (2) requirements to remove instances where molybdenum disulfide lubricant is allowed for use in bolting applications in specific procedures and to add a general prohibition against use of molybdenum disulfide lubricants for bolted connections, (3) guidance for torquing and closure requirements that include proper torquing of the bolts and checking for uniformity of gasket compression after assembly, (4) guidance for torquing and closure requirements based on the recommendations of EPRI NP-5769, "Degradation and Failure of Bolting in Nuclear Power Plants," (with exceptions noted in NUREG-1339), EPRI TR-104213, "Bolted Joint Maintenance & Applications Guide," and EPRI 5067, "Good Bolting Practices, A Reference Manual for Nuclear Power Plant Personnel," Volumes I and II, (5) a centralized procedure based on EPRI NP-5769, EPRI TR-104213, and EPRI-5067 containing guidance regarding bolted joint leak tightness and pre-installation inspections consistent with the recommendations of those documents, (6) periodic examinations of a representative sample of bolting identified as potentially having yield strength ≥150 ksi for SCC consisting of periodic in situ ultrasonic testing or, alternatively, surface examination or bolt replacement, with sample sizes based on EPRI TR-107514 methodology, (7) examination of NSSS support high strength bolting for SCC concurrent with examinations of the associated supports at least once per 10-year ISI period, and (8) acceptance standards for examination of high strength structural bolting consistent with the recommendations of EPRI NP-5769 or application specific structural analyses.	A.1.1.8	Prior to the period of extended operation	Bolting Integrity Program LRA Section B.2.8, RAI B.2.8-2, RAI B.2.8-3

CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS, REVISION 3				
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6	The Program will be enhanced to: (1) include the Nuclear Services and Decay Heat Seawater System Pumps in a periodic inspection and/or rebuild program. This Program will be initiated during the current license period and inspect one or more pumps prior to the period of extended operation, (2) subject the Nuclear Services and Decay Heat Seawater System Discharge Conduits to inspection and evaluation subsequent to the SG replacement project, but prior to the period of extended operation, in order to determine the extent of activities required during the period of extended operation to support the intended function of these components, (3) incorporate hardness/scratch testing for selective leaching into the examinations of susceptible pumps and valves and, if evidence of degradation is detected, of seawater heat exchanger tubesheet cladding, (4) incorporate Nuclear Services and Decay Heat Seawater System Intake Conduit inspections for degraded or missing concrete lining. Affected areas will be monitored to assure no loss of intended function until such time as the lining can be repaired, (5) incorporate acceptance criteria into procedures for inspections for biofouling and maintenance of protective linings, and (6) establish periodic maintenance activities for Nuclear Services and Decay Heat Seawater System expansion joints prior to the period of extended operation.	A.1.1.10	As stated in the commitment	Open-Cycle Cooling Water System Program LRA Section B.2.10, RAI B.2.10-1, RAI B.2.10-2, RAI B.2.10-3
7	Administrative controls for the Program will be enhanced to: (1) include in the Program all cranes within the scope of License Renewal, (2) require the responsible engineer to be notified of unsatisfactory crane inspection results involving loss of material, (3) specify the frequency of inspections for the cranes within the scope of License Renewal to be every refueling outage for cranes in the Reactor Building and every two years for cranes outside the Reactor Building, and (4) clarify that crane rails are to be inspected for abnormal wear and that members to be inspected for cracking include welds.	A.1.1.12	Prior to the period of extended operation	Inspection of Overhead Heavy Load and Light Load Handling Systems Program LRA Section B.2.12

CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS, REVISION 3				
ITEM NO.	**COMMITMENT**	**FINAL SAFETY ANALYSIS REPORT (FSAR) SUPPLEMENT LOCATION**	**PROGRAM IMPLEMENTATION SCHEDULE**	**LICENSE RENEWAL APPLICATION (LRA) SOURCE**
8	The Program administrative controls will be enhanced to: (1) include specific guidance for periodic inspection of fire barrier walls, ceilings, and floors including a requirement to notify Fire Protection of any deficiencies having the potential to adversely affect the fire barrier function, (2) include additional inspection criteria as described in NUREG-1801 for penetration seals, (3) include additional inspection criteria for corrosion of fire doors, (4) specify minimum qualification requirements for personnel performing visual inspections of penetrations seals and fire doors, and (5) specify inspections of fire barrier walls, ceilings, and floors on a frequency of at least once every five years.	A.1.1.13	Prior to the period of extended operation	Fire Protection Program LRA Section B.2.13, RAI B.2.13-2.1

CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS, REVISION 3				
ITEM NO.	**COMMITMENT**	**FINAL SAFETY ANALYSIS REPORT (FSAR) SUPPLEMENT LOCATION**	**PROGRAM IMPLEMENTATION SCHEDULE**	**LICENSE RENEWAL APPLICATION (LRA) SOURCE**
9	The Program will be enhanced to: (1) incorporate a requirement to perform one or a combination of the following two activities: (a) Implement periodic flow testing consistent with the intent of NFPA 25, or (b) Perform wall thickness evaluations to verify piping is not impaired by pipe scale, corrosion products, or other foreign material. For sprinkler systems, this may be done by flushing, internal inspection by removing one or more sprinkler heads, or by other obstruction investigation methods, (such as technically proven ultrasonic and X-ray examination) that have been evaluated as being capable of detecting obstructions. (These inspections will be performed before the end of the current operating term. The results from the initial inspections will be used to determine inspection intervals thereafter during the period of extended operation.), (2) perform internal inspections of system piping at representative locations as required to verify that loss of material due to corrosion has not impaired system intended function. Alternately, non-intrusive inspections (e.g., ultrasonic testing) can be used to verify piping integrity. (These inspections will be performed before the end of the current operating term. The results from the initial inspections will be used to determine inspection intervals thereafter during the period of extended operation.), (3) incorporate a requirement to perform a visual inspection of yard fire hydrants annually consistent with the intent of NFPA 25 to ensure timely detection of signs of degradation, such as corrosion, and (4) consistent with the intent of NFPA 25, either replace the sprinkler heads prior to reaching their 50-year service life or revise site procedures to perform field service testing, by a recognized testing laboratory, of representative samples from one or more sample areas. (Subsequent testing will be performed on a representative sample at an interval of 10 years after the initial field service testing.)	A.1.1.14	Prior to the period of extended operation	Fire Water System Program LRA Section B.2.14, RAI B.2.14-1

CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS, REVISION 3				
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10	The Aboveground Steel Tanks Program is a new program to be implemented.	A.1.1.15	Prior to the period of extended operation	Aboveground Steel Tanks Program LRA Section B.2.15
11	The Program will be enhanced to: (1) adjust the inspection frequency for the Diesel-Driven Emergency Feedwater Pump Fuel Oil Storage Tank to ensure an inspection is performed prior to the period of extended operation, (2) inspect the internal surfaces of the Diesel-Driven Fire Pump Fuel Oil Storage Tanks, and (3) develop a work activity to periodically inspect the internal surfaces of the Diesel-Driven Fire Pump Fuel Oil Storage Tanks.	A.1.1.16	Prior to the period of extended operation	Fuel Oil Chemistry Program LRA Section B.2.16
12	The Program will be enhanced to: (1) ensure that neutron exposure conditions of the reactor vessel remain bounded by those used to project the effects of embrittlement to the end of the 60-year extended license period and (2) establish formalized controls for the storage of archived specimens to ensure availability for future use by maintaining the identity, traceability, and recovery of the archived specimens throughout the storage period.	A.1.1.17	Prior to the period of extended operation	Reactor Vessel Surveillance Program LRA Section B.2.17
13	The One-Time Inspection Program is a new program to be implemented.	A.1.1.18	Prior to the period of extended operation	One-Time Inspection Program LRA Section B.2.18
14	The Selective Leaching of Materials Program is a new program to be implemented.	A.1.1.19	Prior to the period of extended operation	Selective Leaching of Materials Program LRA Section B.2.19
15	The Buried Piping and Tanks Inspection Program is a new program to be implemented.	A.1.1.20	Prior to the period of extended operation	Buried Piping and Tanks Inspection Program LRA Section B.2.20

CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS, REVISION 3				
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16	Program administrative controls will be revised to incorporate periodic volumetric examinations of ASME Code Class 1 small-bore socket welds. A volumetric examination technique will be developed capable of detecting cracking in Class 1 socket welds. The total number of socket welds selected for examination will be at least 10% of the total population per inservice inspection (ISI) interval. Prior to the period of extended operation, CR-3 will perform a baseline inspection equivalent to one third of those inspections required for an interval. The regular inspection schedule is to commence in the third period of the fourth ISI interval.	A.1.1.1	Prior to the period of extended operation	ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD Program LRA Section B.2.1, RAI B.2.21-3 RAI B.2.21-5
17	The Program will be enhanced to: (1) incorporate measures to assure the integrity of surfaces that are inaccessible or not readily visible during both plant operations and refueling outages, and (2) incorporate inspection attributes for degradation of coatings.	A.1.1.22	Prior to the period of extended operation	External Surfaces Monitoring Program LRA Section B.2.22, RAI B.2.22-1
18	The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program is a new program to be implemented.	A.1.1.23	Prior to the period of extended operation	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program LRA Section B.2.23
19	Program administrative controls will be enhanced to (1) identify the structures that have masonry walls in the scope of License Renewal, and (2) include inspection of the masonry walls in the Machine Shop in a periodic engineering activity (PMID).	A.1.1.29	Prior to the period of extended operation	Masonry Wall Program LRA Section B.2.29 RAI 2.2-06

CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS, REVISION 3				
ITEM NO.	**COMMITMENT**	**FINAL SAFETY ANALYSIS REPORT (FSAR) SUPPLEMENT LOCATION**	**PROGRAM IMPLEMENTATION SCHEDULE**	**LICENSE RENEWAL APPLICATION (LRA) SOURCE**
20	Program will be enhanced by revising the administrative controls that implement the Program to: (1) identify all License Renewal structures and systems that credit the Program for aging management in the corporate procedure for condition monitoring of structures, (2) require notification of the responsible engineer when below grade concrete including concrete pipe is exposed so an inspection may be performed prior to backfilling, (3) require periodic groundwater chemistry monitoring including consideration for potential seasonal variations, (4) require periodic inspections of the water control structures, i.e., Circulating Water Intake Structure, Circulating Water Discharge Structure, Nuclear Service Sea Water Discharge Structure, Intake Canal, and Raw Water Pits, on a frequency not to exceed five years, (5) require periodic inspections of the Circulating Water Intake Structure submerged portions on a frequency not to exceed five years, (6) identify additional civil/structural commodities and associated inspection attributes and performance standard required for License Renewal in the corporate procedure for condition monitoring of structures, (7) identify additional inspection criteria for structural commodities in the site system walkdown checklist, (8) add inspection of corrosion to the inspection criteria for the bar racks at the Circulating Water Intake Structure as a periodic maintenance activity, (9) add an inspection of the earth for loss of form and loss of material for the Wave Embankment Protection Structure as a periodic maintenance activity, (10) include additional in-scope structures and specific civil/structural commodities in periodic engineering activities, (11) require periodic inspections of the Fluorogold slide bearing plates used in structural steel platform applications in the Reactor Building., and (12) require periodic inspection of structures on a frequency of at least once every five years.	A.1.1.30	Prior to the period of extended operation	Structures Monitoring Program LRA Section B.2.30, RAI B.2.13-2.1

CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS, REVISION 3				
ITEM NO.	**COMMITMENT**	**FINAL SAFETY ANALYSIS REPORT (FSAR) SUPPLEMENT LOCATION**	**PROGRAM IMPLEMENTATION SCHEDULE**	**LICENSE RENEWAL APPLICATION (LRA) SOURCE**
21	The Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program is a new program to be implemented.	A.1.1.31	Prior to the period of extended operation	Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program LRA Section B.2.31
22	The Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits Program is a new program to be implemented.	A.1.1.32	Prior to the period of extended operation	Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits Program LRA Section B.2.32
23	The Inaccessible Medium Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program is a new program to be implemented.	A.1.1.33	Prior to the period of extended operation	Inaccessible Medium Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program LRA Section B.2.33
24	The Metal Enclosed Bus Program is a new program to be implemented.	A.1.1.34	Prior to the period of extended operation	Metal Enclosed Bus Program LRA Section B.2.34
25	The Fuse Holder Program is a new program to be implemented.	A.1.1.35	Prior to the period of extended operation	Fuse Holder Program LRA Section B.2.35

CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS, REVISION 3				
ITEM NO.	**COMMITMENT**	**FINAL SAFETY ANALYSIS REPORT (FSAR) SUPPLEMENT LOCATION**	**PROGRAM IMPLEMENTATION SCHEDULE**	**LICENSE RENEWAL APPLICATION (LRA) SOURCE**
26	The Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program is a new program to be implemented.	A.1.1.36	Prior to the period of extended operation	Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program LRA Section B.2.36
27	Administrative controls for the Program will be enhanced to: (1) include provisions to monitor and trend data for incorporation in test procedures to ensure the projection meets the acceptance criteria, (2) incorporate acceptance criteria tables for accumulated weight losses of monitored Carborundum samples, and (3) implement periodic Boron-10 Areal Density Gauge for Evaluating Racks (BADGER) testing or comparable neutron attenuation testing for racks in Pools A and B to ensure that the neutron absorption intended function is maintained, and that technical specification criticality requirements are continually met.	A.1.1.37	Prior to the period of extended operation	Fuel Pool Rack Neutron Absorber Monitoring Program LRA Section B.2.37, RAI 3.3.2.2.6-2, RAI B.2.37-2
28	The High-Voltage Insulators in the 230KV Switchyard Program is a new program to be implemented.	A.1.1.38	Prior to the period of extended operation	High-Voltage Insulators in the 230KV Switchyard Program LRA Section B.2.38

CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS, REVISION 3				
ITEM NO.	**COMMITMENT**	**FINAL SAFETY ANALYSIS REPORT (FSAR) SUPPLEMENT LOCATION**	**PROGRAM IMPLEMENTATION SCHEDULE**	**LICENSE RENEWAL APPLICATION (LRA) SOURCE**
29	Administrative controls for the Program will be revised to: (1) enhance procedures and activities credited for performance of physical inspections to reflect that inspections of components exposed to closed-cycle cooling water will be performed as made available on an opportunistic basis, (2) flag procedures and activities credited with performance monitoring of parameters in the Instrument Air and Secondary Services Closed Cycle Cooling Water Systems to assure pump and heat exchanger performance are identified as license renewal activities, and (3) flag procedures associated with closed cycle cooling water chemistry controls to identify chemistry controls associated for in-scope systems as License Renewal activities.	A.1.1.11	Prior to the period of extended operation	Closed-Cycle Cooling Water System Program LRA Section B.2.11, RAI B.2.11-1, RAI B.2.11-2
30	Implementing procedures for the Program will be enhanced to ensure compliance with the requirements in NUREG-1801, Revision 1, Section XI.M19.	A.1.9	Prior to the period of extended operation	Steam Generator Tube Integrity Program LRA Section A.1.9 RAI B.2.9-2.1