



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

Ref: 10 CFR 54

January 21, 2011
3F0111-04

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

Subject: Crystal River Unit 3 – Comments on the Safety Evaluation Report with Open Items Related to the License Renewal of Crystal River Unit 3 Nuclear Generating Plant (TAC NO. ME0274) and Amendment #18

- 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 December 14, 2010, "Safety Evaluation Report with Open Items Related to the License Renewal of Crystal River Unit 3 Nuclear Generating Plant (TAC NO. ME0274)"

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 December 14, 2010, provided a safety evaluation report (SER) with open items related to the license renewal of CR-3 (Reference 2). The NRC requested that CR-3 review the SER, verify its accuracy, and provide comments to the staff by January 21, 2011. Enclosure 1 to this letter provides comments on Reference 2 and information to resolve Open Item OI-3.0.3.1.19-1. Enclosure 2 provides changes to the CR-3 License Renewal Application to resolve SER Confirmatory Item CI-4.3.4.2-1 and clarify previous commitments regarding the Fuel Oil Chemistry Program. 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 contained in this submittal; however, changes to commitments based on previous CR-3 letters to the NRC are included in Enclosure 3.

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. Comments on the Crystal River Unit 3 Safety Evaluation Report
 2. Amendment #18 Changes to the License Renewal Application
 3. Crystal River Unit 3 License Renewal Commitments, Revision 4

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
ure

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 21 day of January, 2011, by Jon A. Franke.



Signature of Notary Public
State of Florida



(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

**COMMENTS ON THE CRYSTAL RIVER UNIT 3
SAFETY EVALUATION REPORT**

COMMENTS ON THE CRYSTAL RIVER UNIT 3 SAFETY EVALUATION REPORT

Section No.	Page No.	Comment
1.5	1-7	The request for additional information (RAI) response to resolve Safety Evaluation Report (SER) Open Item (OI)-3.0.3.1.9-1 regarding the One-Time Inspection Program was provided in CR-3 letter, 3F1210-09, dated December 29, 2010.
1.5	1-8	The RAI response to resolve OI-3.0.3.1.10-1 regarding the Buried Piping and Tanks Inspection Program was provided in CR-3 letter, 3F1210-03, dated December 8, 2010 (ADAMS Accession No. ML103470140).
1.5	1-8	<p>The RAI response to resolve OI-3.0.3.1.19-1 regarding the Inaccessible Medium Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program was provided in CR-3 letter, 3F1110-02, dated November 12, 2010 (ADAMS Accession No. ML103200064). Further justification for the CR-3 manhole inspection schedule is provided below.</p> <p>CR-3 has identified four manholes containing inaccessible in-scope power cables. Of these, three are located on the plant berm, and one is located at the intake structure. The manhole located at the intake structure is equipped with a sump pump to remove any accumulating water. Of the three manholes located on the berm, one is located inside the Hot Machine Shop. This manhole is enclosed in a dry protected structure and is free from the effects of heavy rain events.</p> <p>The remaining two manholes, E2 and E3, are located on the west side of the berm on a shelf that is approximately 18 feet above site elevation. The opening to the manholes is approximately 18 inches to 2 feet above the surrounding grade. The bottoms of these manholes are at elevation 104 ft.-6 in. and 105 ft. respectively, which is approximately 14 feet above the water table at CR-3. A November 2010 inspection of manholes E2 and E3 found no standing water in manhole E3 and approximately 3 inches of water in manhole E2. The lowest cable tray in this manhole is 2 feet off the floor. The prior inspection was performed in August 2009. Due to the location of these manholes, i.e., well above the site elevation, flooding is not a concern.</p> <p>CR-3 annually receives approximately 52 inches of rain, and the recent manhole inspections show no significant accumulation of water in manholes E2 and E3. These manholes have no drainage system, so any accumulated water must be removed by pumping. The work instructions for these manholes require that they are left properly sealed, precluding significant water ingress during rain events. Should an accumulation of water be found during the annual inspection, an evaluation will be performed to determine the cause of the in-leakage and appropriate action taken through the CR-3 Corrective Action Program.</p> <p>Based on the above, inspections following event driven occurrences such as flooding or heavy rains are not required for in-scope electrical manholes at CR-3. The manholes are equipped with sump pumps, protected from the elements, or maintained in a manner that precludes accumulation of water of sufficient depth to cover the cables.</p>
1.5	1-8	The RAI response to resolve OI-3.0.3.2.10-1 regarding the Selective Leaching of Materials Program was provided in CR-3 letter, 3F1210-09, dated December 29, 2010.
1.5	1-8	The RAI response to resolve OI-3.0.3.2.13-1 regarding the Masonry Wall Program was provided in CR-3 letter, 3F1210-09, dated December 29, 2010.

Section No.	Page No.	Comment
1.5	1-9	The RAI response to resolve OI-3.0.3.2.14-1 regarding the Structures Monitoring Program was provided in CR-3 letter, 3F1210-09, dated December 29, 2010.
1.5	1-9	The RAI response to resolve OI-3.3.2.2.4.1-1 regarding aging management of letdown heat exchangers was provided in CR-3 letter, 3F1210-06, dated December 16, 2010.
1.5	1-9	The additional information to resolve OI-3.5-1 regarding Reactor Building concrete delamination has been submitted in several CR-3 letters as summarized in the supplemental response to RAI B.2.26-1 in letter 3F1210-09, dated December 29, 2010. Also, the discussion of this OI includes a list of SER sections that discuss the issue. Section 3.0.3.1.16 should be added to the list.
1-5	1-10	The RAI response to resolve OI-4.3.3-1 regarding environmentally-assisted fatigue was provided in CR-3 letter, 3F1210-09, dated December 29, 2010.
1.6	1-10	Confirmatory Item (CI)-4.3.4.2-1 refers to a teleconference wherein CR-3 stated that a disposition would be provided for reactor coolant pump (RCP) casings and nozzles under 10 CFR 54.21(c)(1)(ii). The subject disposition is provided as a License Renewal Application (LRA) amendment in Enclosure 2 to this letter.
2.1.3	2-3	The list of systems that were the subject of an NRC scoping and screening audit includes a system named "complex chilled water". The correct system name is "Control Complex Chilled Water". This comment applies to several places where this list of systems is included in the SER, ref., page 2-9, page 2-21, page 2-22, page 2-26, and page 2-27.
2.3.2.5.1	2-51	In the second paragraph, it is stated that the screening results for each system are described elsewhere in LRA Section 2.3.2.5. This should be revised to refer to Section 2.3 of the LRA instead of 2.3.2.5. The screening results for systems with containment isolation valves are not in Section 2.3.2.5.
2.3.3.3.2	2-58	The penultimate paragraph should refer to "containment isolation piping and components".
2.4.2.1.1	2-143	The 2 nd paragraph refers to a 120-ton fuel handling area crane. The title of the crane was changed to "Auxiliary Building Overhead Crane" in Enclosure 2, page 7, of letter, 3F0110-04, dated January 27, 2010 (ADAMS Accession No. ML100290366).
Table 3.0.3-1	3-8	The Buried Piping and Tanks Inspection Program should indicate that the program is consistent with exception.
Table 3.0.3-1	3-9	The Inaccessible Medium-Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program should indicate that the program is consistent with exception as described in CR-3 letter, 3F1110-02, dated November 12, 2010 (ADAMS Accession No. ML103200064).
Table 3.0.3-1	3-9	Add the new program X.S1, Concrete Containment Prestress Program.
3.0.3.1.10	3-39	The first bullet in operating experience (OE) discussion refers to incidence of corrosion at the Condensate Storage Tank (CST) piping ground/air interface as being a leak. There was never any leakage or unacceptable loss of material associated with this event. This was clarified in the response to RAI B.2.22-3, in CR-3 letter, 3F1210-03, dated December 8, 2010 (ADAMS Accession No. ML103470140).
3.0.3.1.10	3-39	The sixth bullet regarding the Diesel Generator Fuel Oil (DG FO) storage tank inspections; CR-3 periodically inspects the lower heads and shells, not heads and lower shells.

Section No.	Page No.	Comment
3.0.3.1.10	3-39	The eighth bullet states that most of the Nuclear Service and Decay Heat Seawater System is 20 feet below sea level. This description only pertains to the intake conduits, not the entire system. Suggest stating: "The nuclear service and decay heat sea water system intake conduits were constructed underwater and are approximately 20 feet below mean sea level".
3.0.3.1.13	3-48	The 2 nd paragraph last sentence should be corrected to state, "...the work orders generated to perform IVE examinations will contain a task..." not "...the work orders generated to examinations will contain a task...".
3.0.3.2.2	3-89	The description of what CR-3 will consider as high-strength bolting reads, "(i.e., bolting with 120 less than S _y less than 150 ksi) and above, will be assumed to be high-strength bolting". This should read "i.e., bolting with S _y greater than 120 ksi will be assumed to be high-strength bolting".
3.0.3.2.4	3-98	The penultimate paragraph should state that "... flow rate is not relevant to the industrial cooling system pump's intended function". Likewise, the same paragraph relating to the heat exchanger on page 3-99 should state "... heat transfer is not relevant to the industrial cooling system heat exchanger's intended function."
3.0.3.2.4	3-99	The conclusion of the first paragraph on this page should be related to heat exchangers, not pumps.
3.0.3.2.4	3-101	The conclusion paragraph to this section states that, "Also, the staff reviewed the enhancements and confirmed that its implementation through Commitment No. 29 prior to the period of extended operation would make the existing AMP consistent with the GALL Report AMP to which it was compared." To the contrary, as noted in the preceding discussion, this AMP has several exceptions to GALL.
3.0.3.2.8	3-120	<p>The discussion of commitments (1), (2), and (3) on page 3-120 should be revised to agree with the response to RAI B.2.16-1-1 in CR-3 letter 3F0110-04, dated January 27, 2010 (ADAMS Accession No. ML100290366). Specifically commitment (2) should be revised in accordance with the following wording:</p> <p style="padding-left: 40px;">(2) inspect the internal surfaces of the Diesel-Driven Fire Pump Fuel Oil Storage Tanks, unless trending indicates an appropriate change in frequency is warranted, and,</p> <p>Also, it would appear that the LRA and CR-3 License Renewal commitments were not updated to reflect the response to RAI B.2.16-1.1 and should be revised as indicated in Enclosures 2 and 3.</p>
3.0.3.3.1	3-153	The description of the program at the bottom of the page (and elsewhere in the program description) could be interpreted as having a staggered test schedule for both Boral and Carborundum panels. In fact, the staggered test schedule only pertains to Carborundum, where attenuation testing and weight testing will alternate on a five year frequency. For Boral, testing will be limited to attenuation testing on a ten year frequency.
3.1.2.2.5	3-201	<p>In the second paragraph, regarding a time-limited aging analysis (TLAA), it states:</p> <p style="padding-left: 40px;">In LRA Table 3.1.1, the applicant identified item 3.1.1-21 as a TLAA item for reactor vessel shell fabricated of SA208-CI 2 forgings clad with stainless steel using a high-heat input welding...</p> <p>SA208-CI 2 should be SA508-CI 2 to agree with LRA, Table 3.1.1, page 3.1-16, Item 3.1.1-21.</p>

Section No.	Page No.	Comment
3.1.2.2.7	3-204	The discussion of a destructive examination being performed in lieu of volumetric examinations was not accepted by the staff, and has been superseded.
3.1.2.3.1	3-216	There is an incorrect reference to the section where the One-Time Inspection AMP is evaluated. Instead of 3.0.3.1.11, this should read 3.0.3.1.9.
3.2.2.2.6	3-241	The discussion at the bottom of the page discusses the implementation of a new visual examination activity to detect erosion on the inside of the High Pressure Injection (HPI) mini-flow orifices. However, the CR-3 response to RAI 3.2.2.2.6-1 in letter, 3F0810-01, dated August 9, 2010 (ADAMS Accession No. ML102230030), does not say this will be a visual exam, and due to the configuration, a visual of internal surfaces is not feasible. It will likely necessitate a radiographic test.
3.3.2.3.15	3-311	In the discussion on the effectiveness of the Selective Leaching Program, this section states, "... as documented in LRA Section B.2.10, the applicant discussed plant-specific operating experience in which multiple instances of selective leaching of components in the nuclear services and decay heat sea water system have been detected and corrected by this program." While CR-3 has identified instances of selective leaching, the Selective Leaching Program is a <u>NEW</u> , sample based program, and was not involved in this OE.
3.3.2.3.18	3-315	The discussion of inspection of buried components in the middle of the third paragraph has been superseded. This text discusses that inspections will be implemented consistent with the recommendation of GALL AMP XI.M34. The inspection requirements of GALL, Rev. 1, were later determined to be insufficient, and in the response to RAI B.2.22-3 CR-3 agreed to an inspection schedule based on the requirements of the GALL, Rev. 2, Buried Piping Program, AMP XI.M41.
3.3.2.3.20	3-319	The first paragraph should refer to LRA Table 3.3.2-20 (not 2.3.2-20).
3.5.3.2.16	3-476	There is an incorrect reference to the section where the One-Time Inspection Program is evaluated. Instead of 3.0.3.1.11, this should read 3.0.3.1.9.
3.6.2.1.1	3-484	In the discussion of Metal Enclosed Bus on this page, an NRC letter dated September 30, 2009 and a CR-3 letter dated December 30, 2009 are cited. The dates of these letters should be November 3, 2009 and December 3, 2009.
4.3.3.2	4-42	In the fourth paragraph, revise NUREG/CR-6909 to NUREG/CR-5704 to agree with the response provided to RAI 4.3.3-2, Part 5, contained in letter, 3F1009-07, dated October 13, 2009 (ADAMS Accession No. ML092890155).
4.7.4	4-63	The final sentence in this section refers to the UFSAR Supplement. For CR-3, this should be the FSAR Supplement.
Commit #1	A-2	The implementation schedule should be, "As stated in the Commitment."
Commit #11	A-4	Refer to the comment on SER Section 3.0.3.2.8, page 3-120, regarding updating the commitments for the Fuel Oil Chemistry Program. Also see the revised Commitment #11 in Enclosure 3.
Commit #19	A-5	Refer to the revised commitment in Enclosure 3 which is based on the information provided in the response to RAI B.2.29-1 submitted in letter, 3F1210-09, dated December 29, 2010.
Commit #20	A-6	Refer to the revised commitment in Enclosure 3 which is based on the information provided in the response to RAI B.2.30-6 submitted in letter, 3F1210-09, dated December 29, 2010.

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50 - 302 / LICENSE NUMBER DPR - 72

ENCLOSURE 2

**AMENDMENT #18 CHANGES TO THE LICENSE RENEWAL
APPLICATION**

Amendment 18 Changes to the License Renewal Application

Source of Change	License Renewal Application Amendment 18 Changes
<p>RAI 4.3.4-1 Revised Response</p>	<p>Revise LRA Table 4.1-1 on Page 4.1-4 to change entry under the column entitled "10 CFR 54.21(c)(1) Paragraph" for the RCS Loop Piping Leak-Before-Break Analysis from (i) to (ii).</p> <p>Make the following changes to LRA Section 4.3.4 on Page 4.3-13:</p> <p>Revise the Summary Description on Page 4.3-13 by deleting the last sentence and combining sentences 3 and 4 to read:</p> <p style="padding-left: 40px;">The TLAA in report BAW-1847, Revision 1, addresses fatigue flaw growth and an assessment of thermal aging of cast austenitic stainless steel (CASS) RCP inlet and exit nozzles.</p> <p>Revise the second paragraph of the Fatigue Flaw Growth analysis at the top of LRA Page 4.3-14 by deleting the last sentence.</p> <p>Revise the Summary paragraph on LRA Page 4.3-15 to read:</p> <p style="padding-left: 40px;">In summary, it has been demonstrated that the fatigue flaw growth analysis reported in BAW-1847, Revision 1, remains valid since the number of NSSS design transients will not be revised for License Renewal. Reduction of fracture toughness of the RCP nozzles was determined to be acceptable by projection to the end of the period of extended operation through the flaw stability analysis described above. The Alloy 82/182 welds within the scope of BAW-1847, Revision 1, are the welds that connect the 28 in. stainless steel carbon steel cold leg piping to the stainless safe pump transition pieces. Based on the above, the analysis has been projected to the end of the period of extended operation.</p> <p>Revise the Disposition statement on LRA Page 4.3-15 to read:</p> <p style="padding-left: 40px;">10 CFR 54.21(c)(1)(ii) – The RCS loop LBB analysis has been projected to the end of the period of extended operation.</p> <p>Make the following changes to LRA Section A.1.2.2.11 on Pages A-35 through A-37:</p> <p>Revise the first paragraph on Page A-35 and the top of Page A-36 by deleting the last sentence and combining sentences 2 and 3 to read:</p> <p style="padding-left: 40px;">The TLAA in BAW-1847, Revision 1, addresses flaw growth and an assessment of thermal aging of cast austenitic stainless steel (CASS) RCP inlet and outlet nozzles.</p> <p>Revise the first full paragraph on Page A-36 by deleting the last sentence, i.e., the sentence beginning with: "Therefore, the flaw growth evaluation reported in BAW-1847...".</p> <p>Revise the final paragraph on Page A-37 to read:</p> <p style="padding-left: 40px;">Therefore, it has been demonstrated that the fatigue flaw growth analysis reported in BAW-1847, Revision 1, remains valid since the number of NSSS design transients will</p> <p style="text-align: right;">(continued)</p>

Source of Change	License Renewal Application Amendment 18 Changes
RAI 4.3.4-1 Revised Response (continued)	not be revised for License Renewal. Reduction of fracture toughness of the RCP nozzles was determined to be acceptable by projection to the end of the period of extended operation through the flaw stability analysis described above. The Alloy 82/182 welds within the scope of BAW-1847, Revision 1, are the welds that connect the 28 in. stainless steel carbon steel cold leg piping to the stainless safe pump transition pieces. Based on the above, the analysis has been projected to the end of the period of extended operation in accordance with 10 CFR 54.21(c)(1)(ii).
RAI B.2.16-1.1 from CR-3 letter 3F0110-04	<p>Revise the second paragraph of LRA Subsection A.1.1.16 on Page A-12, as follows:</p> <p>Prior to the period of extended operation, 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. Based on the results of the inspection, the tanks will be cleaned and flushed as necessary. These inspections will be performed every 2 years, unless trending indicates an appropriate change in frequency is warranted, and (3) perform UT inspections of the Diesel-Driven Fire Pump Fuel Oil Storage Tanks prior to the period of extended operation, and at intervals not to exceed 10 years.</p> <p>Revise Exception (3) to Program Element Detection of Aging Effects, in LRA Subsection B.2.16, on Page B-55, as follows:</p> <ul style="list-style-type: none"> • Detection of Aging Effects <p>3) With the exception of the Diesel-Driven Fire Pump Fuel Oil Storage Tanks which are subject to periodic ultrasonic thickness (UT) measurements, UT examinations would only be performed if visual inspection reveals significant internal damage due to loss of material. This exception is justified because if visible damage on the internal surface is not identified, then there is no compelling reason to perform UT measurements. Prior to the period of extended operation, all of the subject tanks will have had an inspection of internal surfaces. With the exception of the Emergency Diesel Generator Fuel Oil Storage, these are above ground tanks located inside protected structures; and their external surfaces will be periodically monitored during the period of extended operation in accordance with the License Renewal External Surfaces Monitoring Program. For the in-scope above ground tanks, if there is no significant corrosion identified in internal and external inspections, then additional UT inspections are not warranted. Based on the above, this exception is justified.</p> <p>Revise Enhancements (2) and (3) to Program Elements Preventive Actions and Detection of Aging Effects, in LRA Subsection B.2.16, on Page B-55 and B-56, as follows:</p> <ul style="list-style-type: none"> • Preventive Actions <p>2) Inspect the internal surfaces of the Diesel-Driven Fire Pump Fuel Oil Storage Tanks. Based on the results of the inspection, the tanks will be cleaned and flushed as necessary. These inspections will be performed every 2 years, unless trending indicates an appropriate change in frequency is warranted, and</p>

Source of Change	License Renewal Application Amendment 18 Changes
	<p>(3) Perform UT inspections of the Diesel-Driven Fire Pump Fuel Oil Storage Tanks prior to the period of extended operation, and at intervals not to exceed 10 years.</p> <ul style="list-style-type: none">• Detection of Aging Effects <p>2) Inspect the internal surfaces of the Diesel-Driven Fire Pump Fuel Oil Storage Tanks. Based on the results of the inspection, the tanks will be cleaned and flushed as necessary. These inspections will be performed every 2 years, unless trending indicates an appropriate change in frequency is warranted, and</p> <p>(3) Perform UT inspections of the Diesel-Driven Fire Pump Fuel Oil Storage Tanks prior to the period of extended operation, and at intervals not to exceed 10 years.</p>

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50 - 302 / LICENSE NUMBER DPR - 72

ENCLOSURE 3

**CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS,
REVISION 4**

CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS, REVISION 4				
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

CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS, REVISION 4				
ITEM NO.	COMMITMENT	FINAL SAFETY ANALYSIS REPORT (FSAR) SUPPLEMENT LOCATION	PROGRAM IMPLEMENTATION SCHEDULE	LICENSE RENEWAL APPLICATION (LRA) SOURCE
5	<p>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.</p>	A.1.1.8	Prior to the period of extended operation	<p>Bolting Integrity Program</p> <p>LRA Section B.2.8, RAI B.2.8-2, RAI B.2.8-3</p>

CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS, REVISION 4				
ITEM NO.	COMMITMENT	FINAL SAFETY ANALYSIS REPORT (FSAR) SUPPLEMENT LOCATION	PROGRAM IMPLEMENTATION SCHEDULE	LICENSE RENEWAL APPLICATION (LRA) SOURCE
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

CRYSTAL RIVER UNIT 3 LICENSE RENEWAL COMMITMENTS, REVISION 4				
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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
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

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9	<p>The Program will be enhanced to: (1) incorporate a requirement to perform one or a combination of the following two activities:</p> <p>(a) Implement periodic flow testing consistent with the intent of NFPA 25, or</p> <p>(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.),</p> <p>(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.),</p> <p>(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.)</p>	A.1.1.14	Prior to the period of extended operation	<p>Fire Water System Program</p> <p>LRA Section B.2.14, RAI B.2.14-1</p>

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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. Based on the results of the inspection, the tanks will be cleaned and flushed as necessary. These inspections will be performed every 2 years, unless trending indicates an appropriate change in frequency is warranted, and (3) perform UT inspections of the Diesel-Driven Fire Pump Fuel Oil Storage Tanks prior to the period of extended operation, and at intervals not to exceed 10 years.	A.1.1.16	Prior to the period of extended operation	Fuel Oil Chemistry Program LRA Section B.2.16 RAI B.2.16-1.1
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

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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
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, (2) include inspection of the masonry walls in the Machine Shop in a periodic engineering activity (PMID), and (3) require periodic inspection of masonry walls every five years.	A.1.1.29	Prior to the period of extended operation	Masonry Wall Program LRA Section B.2.29 RAI 2.2-06 RAI B.2.29-1

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20	<p>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., (12) require periodic inspection of structures on a frequency of at least once every five years, and (13) include the quantitative acceptance criteria of ACI 349.3R, Chapter 5, and (14) perform a baseline inspection using the quantitative acceptance criteria of ACI 349.3R prior to the period of extended operation.</p>	A.1.1.30	Prior to the period of extended operation	<p>Structures Monitoring Program</p> <p>LRA Section B.2.30,</p> <p>RAI B.2.13-2.1</p> <p>RAI B.2.30-6</p>

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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

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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

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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