



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

Ref: 10 CFR 2.202

February 26, 2003  
3F0203-07

Secretary, Office of the Secretary of the Commission  
U.S. Nuclear Regulatory Commission  
ATTN: Rulemakings and Adjudications Staff  
Washington, DC 20555-0001

**Subject:** Crystal River Unit 3 - Twenty-Day Response to Order for Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors

- References:**
1. NRC to FPC letter, 3N0203-05, dated February 11, 2003, "Issuance of Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors"
  2. FPC to NRC letter, 3F0302-11, dated March 28, 2002, "Crystal River Unit 3-Response to NRC Bulletin 2002-01, Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity"

Dear Sir:

Progress Energy Florida, Inc. (Florida Power Corporation) hereby submits the Twenty-Day response to the subject Order (Reference 1) which establishes interim inspection requirements for Crystal River Unit 3 (CR-3). The inspection requirements of the Order are based on industry experience with Primary Water Stress Corrosion Cracking (PWSCC) for Alloy 600.

In Reference 2, CR-3 informed the NRC of the commitment to replace the CR-3 reactor pressure vessel (RPV) head in refueling outage 13R, scheduled for Fall 2003. The replacement RPV head has been designed to minimize the concerns for Control Rod Drive Mechanism (CRDM) nozzle cracking and leakage associated with PWSCC of the Alloy 600 nozzle material. Alloy 690 base and weld material is being used for the CR-3 CRDM nozzles on the replacement RPV head.

Section IV–A of the Order provides an equation for all Licensees to determine the susceptibility category of their RPV head to PWSCC-related degradation, as represented by a value of total effective degradation years (EDY), normalized to a reference temperature of 600°F at the end of each operating cycle. Accordingly, the replacement CR-3 RPV head will be in the "Low Susceptibility" category described in Section IV–B of the Order (plants with a calculated value of EDY less than 8 AND no previous inspection findings requiring classification as High).

In accordance with Section IV-C-(3) of the Order, those plants in the “Low Susceptibility” category shall perform RPV head and head penetration nozzle inspections meeting the requirements of Sections IV-C-(3)(a) and IV-C-(3)(b) of the Order.

Section IV-C-(3)(a) requires bare metal visual examination of 100% of the RPV head surface (including 360° around each RPV head penetration nozzle). If an inspection meeting the requirements of Section IV-C-(3)(a) was not performed during the refueling outage immediately preceding the issuance of the Order, the Licensee must complete an inspection meeting the requirements of Section IV-C-(3)(a) within the first two (2) refueling outages following the issuance of the Order.

Section IV-C-(3)(b) of the Order requires either:

- (i) Ultrasonic testing of each RPV head penetration nozzle (i.e., nozzle base material) from two (2) inches above the J-groove weld to the bottom of the nozzle and an assessment to determine if leakage has occurred into the interference fit zone, OR
- (ii) Eddy current testing or dye penetrant testing of the wetted surface of each J-Groove weld and RPV head penetration nozzle base material to at least two (2) inches above the J-groove weld.

The requirements of Section IV-C-(3)(b) of the Order must be completed at least once over the course of five (5) years after the issuance of the Order and repeated thereafter at least every four (4) refueling outages or every seven (7) years, whichever occurs first. Since CR-3 is on 24-month fuel cycles, the inspection frequency expressed in years is the most limiting.

CR-3 intends to meet the initial inspections specified in Sections IV-C-(3)(a) and IV-C-(3)(b) with the prior to service (baseline) inspection of the replacement RPV head. The inspections required by Section IV-C-(3)(a) will be performed thereafter at a frequency of every five (5) years and the inspections required by Section IV-C-(3)(b) at a frequency of every seven (7) years.

Section IV-D requires during each refueling outage, visual inspections to identify potential boric acid leaks from pressure-retaining components above the RPV head. For any plant with boron deposits on the RPV head or related insulation, discovered by the inspections required by the Order or otherwise, and regardless of the source of the deposit, before returning the plant to operation shall perform inspections of the affected RPV head surface and penetrations appropriate to the conditions found to verify the integrity of the affected area and penetrations.

Section IV-E requires, for each inspection required in Section IV-C, of the Order, the submittal of a report detailing the inspection results within sixty (60) days after returning the plant to operation. Section IV-E also requires, for each inspection required in Section IV-D, the submittal of a report detailing the inspection results within sixty (60) days after returning the plant to operation if a leak or boron deposit was found during the inspection.

CR-3 has reviewed the requirements stated above and by this letter consents to implement those requirements. However, CR-3 recognizes that continuing research and operating experience regarding RPV heads with Alloy 690 base and weld material may support a request for future changes to the requirements imposed by the Order.

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

Sincerely,

A handwritten signature in cursive script that reads "Dale E. Young".

Dale E. Young  
Vice President  
Crystal River Nuclear Plant

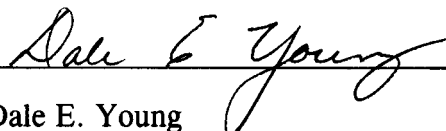
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xc: NRR Project Manager  
Regional Administrator, Region II  
Senior Resident Inspector

**STATE OF FLORIDA**

**COUNTY OF CITRUS**

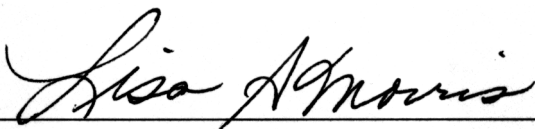
Dale E. Young states that he is the Vice President, Crystal River Nuclear Plant for Progress Energy Florida, Inc. (Florida Power Corporation); that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission the information attached hereto; and that all such statements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

  
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Dale E. Young  
Vice President  
Crystal River Nuclear Plant

The foregoing document was acknowledged before me this 26<sup>th</sup> day of February, 2003, by Dale E. Young.



LISA A. MORRIS  
Notary Public, State of Florida  
My Comm. Exp. Oct. 25, 2003  
Comm. No. CC 879691

  
\_\_\_\_\_  
Signature of Notary Public  
State of Florida

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

Personally Produced  
Known X -OR- Identification