Florida Power
A Progress Energy Company

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

Ref: Generic Letter 97-01

July 18, 2001
3F0701-08

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

Subject: Crystal River Unit 3 - Commitment Change Regarding Control Rod Drive Mechanism (CRDM) Nozzle Inspection Plans

Reference:
1. FPC to NRC letter, 3F0199-06, dated January 14, 1999, "Response to NRC Request for Additional Information Regarding Generic Letter 97-01, "Degradation of CRDM/CEDM Nozzle and Other Vessel Closure Head Penetrations" and Notification of Commitment Change" (TAC No. M98558)
2. FPC to NRC letter, 3F0797-03, dated July 29, 1997, "Generic Letter 97-01, Degradation of Control Rod Drive Mechanism Nozzle and Other Vessel Closure Head Penetrations"

Dear Sir:

The purpose of this letter is to change the commitment (Reference 1) made by Florida Power Corporation (FPC) to perform an inspection of the Crystal River Unit 3 (CR-3) Control Rod Drive Mechanisms (CRDM) nozzles during the fall 2001 refueling outage.

The commitment was stated in Reference 1 as follows: "Inspect the CRDM nozzle welds from beneath the vessel head while it is removed from the vessel. This will be a one-time effort to inspect as many nozzles as possible, up to 69 nozzles, without impacting the outage duration. A minimum of 25 of the CRDM housing nozzles will be inspected (24 outermost nozzles and the one center nozzle without a CRDM)."

The proposed inspection described above was provided in response to Generic Letter (GL) 97-01 (Reference 2). The inspection was to use Eddy Current (ET) techniques to inspect the inside diameter (ID) of the nozzles. The ET inspection was proposed when ID cracking of the CRDM nozzles due to Primary Water Stress Corrosion Cracking (PWSCC) was believed to be predominantly ID initiated. Recent experience at Oconee Nuclear Station (ONS) 1, 2, and 3, and Arkansas Nuclear One (ANO), Unit 1, has attributed through-wall leakage to PWSCC initiating at the outside diameter (OD) surface of the CRDM nozzle wall above and below the J-groove weld.

Instead of the ET inspection, CR-3 will perform a visual inspection of all (69) uninsulated Reactor Vessel Head (RVH) CRDM nozzle penetrations for evidence of leakage. This inspection will be



A075

performed during the scheduled fall 2001 refueling outage. The attachment to this letter states this commitment.

A visual inspection of the uninsulated RVH CRDM nozzle penetrations is being substituted for the ET inspection due to the limited capability of the ET inspection technique. The ET inspection is limited to inspecting the ID surface of the CRDM nozzles. The experience obtained through the visual inspections at ONS 1, 2, and 3 and ANO, Unit 1 shows that through-wall PWSCC cracks in either the nozzle base-metal or the J-groove weld are expected to produce leakage through the annulus between the RVH and the CRDM nozzle. This leakage can effectively be detected by the RVH visual inspection planned for CR-3 during the fall 2001 refueling outage.

Recent inspections (27 nozzles) performed at two of the ONS plants as part of an extent of condition determination indicates that ID initiated cracking is not the predominant cracking issue. The information obtained from the inspection of the 27 CRDM nozzles provides an equivalent amount of data to that which would have been obtained through the CR-3 inspection. The original susceptibility model used in the responses to GL 97-01, which ranked CR-3 as second in probability for having a crack at the allowed depth among the B&W Owners Group (BWOG) plants, has been revised. The revised susceptibility model is based on time at operating temperature. This revision in susceptibility ranks CR-3 last among the BWOG plants with fall outages, approximately 5.2 Effective Full Power Years (EFPY) remaining time to reach Oconee 3 degradation time. This information can be found in Response to June 22, 2001, letter from Dr. Brian Sheron (NRC) to Mr. Alex Marion (NEI) transmitting NRC staff questions on EPRI Interim Report TP-1001491, Part 2.

Additionally, the leakage observed at ONS and ANO has resulted in a very small accumulation of boric acid at and around the CRDM nozzle. This recent experience will enhance inspection personnel's ability to relate the small amounts of boric acid residue similar to that experienced at ONS and ANO to nozzle weld or material leak paths at CR-3.

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

Sincerely,

James H. Terry

James H. Terry
Engineering Manager

JHT/lvc

Attachment: List of Regulatory Commitments

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

**STATE OF FLORIDA**

**COUNTY OF CITRUS**

James H. Terry states that he is the Engineering Manager, Crystal River Nuclear Plant for Progress Energy; 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.

James H. Terry

James H. Terry
Engineering Manager
Crystal River Nuclear Plant

The foregoing document was acknowledged before me this 23d day of July, 2001, by James H. Terry.

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

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

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

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

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

Lisa A Morris

Signature of Notary Public
State of Florida

LISA A MORRIS

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

Personally Known X -OR- Produced Identification _____

## 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 represent 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 Supervisor, Licensing and Regulatory Programs, of any questions regarding this document or any associated regulatory commitments.

| ID Number | Commitment | Commitment Date |
|---|---|---|
| 3F0701-08-1 | CR-3 will perform a visual inspection of all (69) uninsulated Reactor Vessel Head (RVH) CRDM nozzle penetrations for evidence of leakage. This inspection will be performed during the scheduled fall 2001 refueling outage. | During Refuel Outage 12, scheduled for fall 2001. |