June 8, 2006

Mr. Dale E. Young, Vice President
Crystal River Nuclear Plant (NA1B)
ATTN: Supervisor, Licensing and Regulatory Programs
15760 W. Power Line Street
Crystal River, FL 34428-6708

SUBJECT: CRYSTAL RIVER PLANT, UNIT 3 - GENERIC LETTER 2004-01, "REQUIREMENTS FOR STEAM GENERATOR TUBE INSPECTION" (TAC NO. MC4813)

Dear Mr. Young:

On August 30, 2004, the Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2004-01, "Requirements for Steam Generator Tube Inspections." The purpose of GL 2004-01 was to obtain information that would enable the NRC staff to determine whether licensees' steam generator tube inspection programs comply with the existing tube inspection requirements (the plant technical specifications, in conjunction with Appendix B to Part 50 of Title 10 of the *Code of Federal Regulations*).

By letter dated October 27, 2004 (NRC Agencywide Documents Access Management System Accession No. ML043060425), as supplemented by letters dated July 8, 2005 (ML051940269), and April 10, 2006 (ML061080496), Florida Power Corporation, the licensee (also doing business as Progress Energy Florida, Inc.), submitted a response to GL 2004-01, "Requirements for Steam Generator Tube Inspections."

As discussed in the enclosed evaluation, the NRC staff concluded that the licensee's overall response to the GL is acceptable.

This completes the NRC staff's efforts under TAC No. MC4813. If you have any questions regarding this matter, please contact me at (301) 415-2020.

Sincerely,

/RA/

Brenda Mozafari, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-302

Enclosure: Evaluation

cc w/enclosure: See next page

June 8, 2006

Mr. Dale E. Young, Vice President
Crystal River Nuclear Plant (NA1B)
ATTN: Supervisor, Licensing and Regulatory Programs
15760 W. Power Line Street
Crystal River, FL 34428-6708

SUBJECT: CRYSTAL RIVER PLANT, UNIT 3 - GENERIC LETTER 2004-01, "REQUIREMENTS FOR STEAM GENERATOR TUBE INSPECTION" (TAC NO. MC4813)

Dear Mr. Young:

On August 30, 2004, the Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2004-01, "Requirements for Steam Generator Tube Inspections." The purpose of GL 2004-01 was to obtain information that would enable the NRC staff to determine whether licensees' steam generator tube inspection programs comply with the existing tube inspection requirements (the plant technical specifications, in conjunction with Appendix B to Part 50 of Title 10 of the *Code of Federal Regulations*).

By letter dated October 27, 2004 (NRC Agencywide Documents Access Management System Accession No. ML043060425), as supplemented by letters dated July 8, 2005 (ML051940269), and April 10, 2006 (ML061080496), Florida Power Corporation, the licensee (also doing business as Progress Energy Florida, Inc.), submitted a response to GL 2004-01, "Requirements for Steam Generator Tube Inspections."

As discussed in the enclosed evaluation, the NRC staff concluded that the licensee's overall response to the GL is acceptable.

This completes the NRC staff's efforts under TAC No. MC4813. If you have any questions regarding this matter, please contact me at (301) 415-2020.

Sincerely,

/RA/
Brenda Mozafari, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-302

Enclosure: As stated

cc w/enclosure: See next page

Distribution:

PUBLIC	RidsNrrDorlLpl2-2	RidsRgn2MailCenter (JMunday)
LPL2-2 r/f	RidsOgcRp	RidsNrrDeEmcb
RidsNrrPMBMozafari	BClayton (Hard copy)	PKlein
MLesser	RidsAcrsAcnwMailCenter	MYoder
RidsNrrDciCsgb		

ADAMS Accession No.: ML061520472 NRR-106

OFFICE	LPL2-2/PM	LPL2-2/LA	DCI/CSGB (Acting)	LPL2-2/BC
NAME	BMozafari	BClayton	TBloomer (by memo)	DPickett for MMarshall
DATE	06/ 06 /06	06/ 06 /06	05/ 08 /06	06/ 08 /06

OFFICIAL RECORD COPY

EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RESPONSE TO NRC GENERIC LETTER 2004-01

FLORIDA POWER CORPORATION

CRYSTAL RIVER NUCLEAR PLANT UNIT 3

On August 30, 2004, the NRC issued Generic Letter (GL) 2004-01, "Requirements For Steam Generator Tube Inspections." The purpose of GL 2004-01 was to obtain information that would enable the Nuclear Regulatory Commission (NRC) staff to determine whether licensee's steam generator (SG) tube inspection programs comply with the existing tube inspection requirements (the plant Technical Specifications) in conjunction with Appendix B to Title 10 of the Code of Federal Regulations Part 50 (10 CFR Part 50, Appendix B).

By letter dated October 27, 2004, (ML043060425), Florida Power Corporation (FPC or the licensee, also doing business as Progress Energy - Florida), submitted a response to GL 2004-01. This response was supplemented by letters dated July 8, 2005, (ML051940269), and April 10, 2006, (ML061080496). The NRC staff has concluded that your SG tube inspection practices are in compliance with the existing tube inspection requirements; however, the NRC staff has the following observations regarding the tube inspection practices in the lower tubesheet (LTS) region.

A portion of the LTS is referred to as the sludge pile or kidney region. Although the NRC staff could not identify a uniform, quantitative definition of this region in terms of the radial extent (minimum sludge height and/or dent voltage) or axial extent above and below the top of the LTS, it is generally defined by the Babcock and Wilcox (B&W) units with Alloy 600 tubing as the area bounded by dents and sludge at the LTS secondary face. The definition does not include the tube ends, the roll expanded region, or the roll transition which are addressed by separate inspections.

Based on industry operating experience (discussed in the GL 2004-01 response from B&W units with Alloy 600 tubing), the sludge pile or kidney region is susceptible to intergranular attack (IGA) and stress corrosion cracking (SCC). IGA and axially-oriented SCC have been detected both above and below the top of the LTS at non-dented locations. In addition, IGA and circumferentially-oriented SCC have been detected at dented locations in the sludge pile or kidney region.

Approximately 35 circumferential indications were detected at dented locations in the LTS region at Crystal River in 1999. These indications were detected with a rotating probe. The bobbin coil indicated that there was a dent at these locations. In subsequent inspections (up to and including the 2005 inspections), only a small number of volumetric indications were detected in the LTS region (excluding the tube end and roll transition area). All of these latter indications were detected with a bobbin coil. At Crystal River, a sample of dented tubes is inspected with a rotating probe during inspections of the sludge pile region each outage (i.e., there is no separate sampling program for dents in the LTS region). The sludge pile rotating

probe inspections in 2003 were from 4 inches above to 8 inches below the secondary face of the LTS. Greater than 30% of the dented tube population in the LTS were inspected with a rotating probe in 2003. The 2003 inspection of the dents, however, focused only on the dents within the sludge pile region.

Given that the bobbin coil may be insensitive to degradation located in (or near) dents and that all dents are potentially susceptible to degradation, it would seem prudent to incorporate all dents within the LTS within the scope of a random sampling program. In 2005, 100% of the dented locations in the LTS were inspected. Given the scope and results of the 2003 and 2005 examinations, the staff concludes that the examination of the dented locations in the LTS region are in compliance with the existing tube inspection requirements.

The NRC staff recognizes that you concluded (based on site specific qualification) that the bobbin techniques may be used for detecting SCC and IGA in the sludge pile or kidney region. Based on the information you provided in your submittals regarding the site specific inspection qualification, the staff could not conclude for non-dented locations that the bobbin coil technique is effective at finding the forms of degradation that could occur within the kidney or sludge pile region. The staff understands that you recognize the bobbin coil examination alone is not considered sufficient to provide the defense in depth desired for detecting the onset of tube degradation within the LTS.

As a result, you perform additional +Point™ probe examination in this region that meet industry sampling requirements for a non-active degradation mechanism. In general, these rotating probe examinations have indicated that the bobbin coil has not missed degradation at the non-dented locations in this region of the tube bundle. Based on the rotating probe inspections and the results of these inspections, the NRC staff concludes that your inspection practices at the non-dented locations within the LTS region are in compliance with the existing tube inspection requirements.

Florida Power Corporation
cc:

Mr. R. Alexander Glenn
Associate General Counsel (MAC-BT15A)
Florida Power Corporation
P.O. Box 14042
St. Petersburg, Florida 33733-4042

Mr. Jon A. Franke
Plant General Manager
Crystal River Nuclear Plant (NA2C)
15760 W. Power Line Street
Crystal River, Florida 34428-6708

Mr. Jim Mallay
Framatome ANP
1911 North Ft. Myer Drive, Suite 705
Rosslyn, Virginia 22209

Mr. William A. Passetti, Chief
Department of Health
Bureau of Radiation Control
2020 Capital Circle, SE, Bin #C21
Tallahassee, Florida 32399-1741

Attorney General
Department of Legal Affairs
The Capitol
Tallahassee, Florida 32304

Mr. Craig Fugate, Director
Division of Emergency Preparedness
Department of Community Affairs
2740 Centerview Drive
Tallahassee, Florida 32399-2100

Chairman
Board of County Commissioners
Citrus County
110 North Apopka Avenue
Inverness, Florida 34450-4245

Mr. Donald L. Taylor
Manager Support Services
Crystal River Nuclear Plant (NA2C)
15760 W. Power Line Street
Crystal River, Florida 34428-6708

Mr. Daniel L. Roderick
Director Site Operations
Crystal River Nuclear Plant (NA2C)
15760 W. Power Line Street
Crystal River, Florida 34428-6708

Senior Resident Inspector
Crystal River Unit 3
U.S. Nuclear Regulatory Commission
6745 N. Tallahassee Road
Crystal River, Florida 34428

Mr. Richard L. Warden
Manager Nuclear Assessment
Crystal River Nuclear Plant (NA2C)
15760 W. Power Line Street
Crystal River, Florida 34428-6708

Steven R. Carr
Associate General Counsel - Legal Dept.
Progress Energy Service Company, LLC
Post Office Box 1551
Raleigh, North Carolina 27602-1551