March 22, 2007

CAL No. NRR-07-027

Mr. Robert J. Duncan II
Vice President
Shearon Harris Nuclear Power Plant
Carolina Power and Light Company
P. O. Box 165, Mail Code: Zone 1
New Hill, NC 27562-0165

SUBJECT: CONFIRMATORY ACTION LETTER - SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NO. 1 (TAC NO. MD4155)

Dear Mr. Duncan:

This letter confirms commitments by Progress Energy Carolinas, Inc., regarding Alloy 82/182 butt welds in the pressurizer at Shearon Harris Nuclear Power Plant, Unit 1.

The discovery, in October 2006, of five circumferential indications in three dissimilar metal (DM) welds on the pressurizer at the Wolf Creek Generating Station (Wolf Creek) raised safety concerns based on the size and location of the indications. At Wolf Creek, three indications were in the pressurizer surge nozzle-to-safe end weld, and two separate indications were in the safety and relief nozzle-to-safe end welds. These findings also indicated that significant concerns might exist with the inspection schedules for addressing the pressurizer weld concerns issued by the industry-sponsored Materials Reliability Program (MRP), in "Primary System Piping Butt Weld Inspection and Evaluation Guideline (MRP-139)."

The Nuclear Regulatory Commission (NRC) is concerned about the pressurizer surge nozzle-to-safe end weld indications, as this is the first time that multiple circumferential primary water stress-corrosion cracking (PWSCC) indications have been identified in a weld. This condition calls into question the degree of safety margin present in past structural integrity evaluations for flawed DM welds susceptible to PWSCC, since multiple stress-corrosion cracking flaws may grow independently and ultimately grow together, significantly reducing the time from flaw initiation to leakage or rupture. The size of the relief nozzle-to-safe end flaw is also of concern, as this flaw has a much larger aspect ratio than those assumed in the estimates used to establish the basis for completing the baseline inspections required by the industry-sponsored MRP. Larger aspect ratios could result in achieving a critical flaw size and rupture before the onset of detectable leakage.

The long-term resolution of this issue is expected to involve changes to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), and will involve changes to the NRC regulations in Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.55a, "Codes and standards." The development of the NRC regulations, whether the rule adopts the ASME Code standards or defines separate requirements, will likely benefit from additional operating experience, continuing assessments, and analysis being conducted by the NRC and the MRP.

Until NRC regulations are revised, it is necessary to establish a minimum set of enhanced reactor coolant system (RCS) DM butt weld inspection expectations for nickel-based Alloy 82/182 pressurizer surge, spray, safety, and relief nozzle butt welds, including safe end welds, to supplement existing inspection and other requirements of the ASME Code and NRC regulations. In addition, enhanced monitoring of RCS leakage is needed to promptly identify any through-wall flaws in the pressurizer surge, spray, safety, or relief nozzle DM butt welds or safe end DM butt welds to prevent additional degradation from occurring. The above actions provide reasonable assurance that there is no undue risk to the health and safety of the public while the NRC regulations are revised.

The NRC communicated the need for near-term enhancements to the industry through public meetings held on November 30, 2006, December 20, 2006, and February 2, 2007. Licensees submitted letters voluntarily committing to the enhanced inspection and leakage monitoring requirements. After teleconferences with specific licensees held between February 12 through February 23, 2007, the licensees submitted supplemental commitment letters addressing the NRC staff's concerns regarding inspection, compensatory actions, and reporting.

In your letter dated February 27, 2007 (Agencywide Documents Access & Management System (ADAMS) Accession Number ML070650468), you described actions you will take at Shearon Harris Nuclear Power Plant, Unit 1 for the pressurizer dissimilar metal butt welds containing Alloy 82/182 material. These commitments address: 1) completion schedules for inspection/mitigation of the welds; 2) RCS leak monitoring frequency, action levels, and actions; and 3) reporting requirements.

The NRC staff has reviewed these actions and commitments and agrees the actions and commitments are appropriate to address the potential of PWSCC of the applicable pressurizer dissimilar metal butt welds containing Alloy 82/182 material.

Pursuant to Section 182 of the Atomic Energy Act, 42 U.S.C. 2232, you are required to:

1) Notify me immediately if your understanding differs from that set forth above;

2) Notify me if for any reason you cannot complete the actions and commitments within the specified schedule and advise me in writing of your modified schedule in advance of the change; and

3) Notify me in writing when you have completed the actions and commitments addressed in this Confirmatory Action Letter.

Issuance of this Confirmatory Action Letter does not preclude issuance of an order formalizing the above commitments or requiring other actions on the part of the licensee; nor does it preclude the NRC from taking enforcement action for violations of NRC requirements that may have prompted the issuance of this letter. In addition, failure to take the actions addressed in this Confirmatory Action Letter may result in enforcement action.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's ADAMS, accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not

include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

Sincerely,

/RA/

J. E. Dyer, Director
Office of Nuclear Reactor Regulation

Docket No. 50-400
License No. NPF-63

cc: See next page

include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

Sincerely,

/RA/

J. E. Dyer, Director
Office of Nuclear Reactor Regulation

Docket No. 50-400
License No. NPF-63

cc: See next page

Distribution:
PUBLIC LPL2-2 R/F RidsNrrPMCPatel RidsNrrLACSola
RidsNrrDorlLpl2-2 RidsOgcRp RidsAcrsAcnwMailCenter
RidsRgn2MailCenter RidsNrrOd RidsNrrDorl
RidsNrrDci RidsNrrDirs RidsOEMailCenter
RidsEdoMailCenter SCampbell, EDO Region 2 KClark, OPA, Region 2
RTrojanowski, State Liaison Officer, Region 2
TLupold, NRR ESullivan, NRR RPascarelli, NRR
RidsNrrDciCpnb RidsNrrAdes

ADAMS Accession No.: ML070780413 *via e-mail

OFFICE	CPNB	DCI	LPL2-2/PM	LPL2-2/LA	LPL2-2/BC	TECH ED	DIRS/TA
NAME	TLupold KHoffman for	ESullivan	LRegner	RSola	TBoyce	HChang	RPascarelli
DATE	03/20/07	03/21/07	03/19/07	03/19/07	03/20/07	2/28/07	03/20/07

OFFICE	CPNB/BC	DRP/D RGN 2	DORL/D	DCI/D	AD:DES	NRR/D
NAME	TChan	CCasto*	CHaney JLubinski for	MEvans	JGrobe	JDyer
DATE	03/21/07	03/19/07	03/21/07	03/22/07	03/22/07	03/22/07

OFFICIAL RECORD COPY

cc:
David T. Conley
Associate General Counsel II -
Legal Department
Progress Energy Service Company, LLC
Post Office Box 1551
Raleigh, North Carolina 27602-1551

Resident Inspector/ Harris NPS
c/o U. S. Nuclear Regulatory Commission
5421 Shearon Harris Road
New Hill, North Carolina 27562-9998

Ms. Margaret A. Force
Assistant Attorney General
State of North Carolina
Post Office Box 629
Raleigh, North Carolina 27602

Public Service Commission
State of South Carolina
Post Office Drawer 11649
Columbia, South Carolina 29211

Ms. Beverly Hall, Section Chief
Division of Radiation Protection
N.C. Department of Environment
and Natural Resources
3825 Barrett Drive
Raleigh, North Carolina 27609-7721

Mr. J. Paul Fulford
Manager
Performance Evaluation and
Regulatory Affairs PEB 5
Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27602-1551

Mr. Eric McCartney
Plant General Manager
Shearon Harris Nuclear Power Plant
Carolina Power & Light Company
P. O. Box 165, Mail Zone 3
New Hill, North Carolina 27562-0165

Mr. Chris L. Burton
Director of Site Operations
Shearon Harris Nuclear Power Plant
Carolina Power & Light Company
Post Office Box 165, Mail Zone 1
New Hill, North Carolina 27562-0165

Mr. Robert P. Gruber
Executive Director
Public Staff NCUC
4326 Mail Service Center
Raleigh, North Carolina 27699-4326

Chairman of the North Carolina
Utilities Commission
Post Office Box 29510
Raleigh, North Carolina 27626-0510

Mr. Herb Counsel, Chair
Board of County Commissioners
of Wake County
P. O. Box 550
Raleigh, North Carolina 27602

Mr. Tommy Emerson, Chair
Board of County Commissioners
of Chatham County
P. O. Box 87
Pittsboro, North Carolina 27312

Mr. Thomas J. Natale, Manager
Support Services
Shearon Harris Nuclear Power Plant
Carolina Power & Light Company
P. O. Box 165, Mail Zone 1
New Hill, North Carolina 27562-0165

Mr. David H. Corlett, Supervisor
Licensing/Regulatory Programs
Shearon Harris Nuclear Power Plant
Carolina Power & Light Company
P. O. Box 165, Mail Zone 1
New Hill, NC 27562-0165

Mr. John H. O'Neill, Jr.
Shaw, Pittman, Potts & Trowbridge
2300 N Street, NW.
Washington, DC 20037-1128