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SUBJECT: Provides 90 day response to GL 92-01,rev 1,suppl 1, "Reactor Vessel Structural Integrity."

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Vice President
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AUG 17 1995

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United States Nuclear Regulatory Commission
ATTENTION: Document Control Desk
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SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
RESPONSE TO GENERIC LETTER 92-01, REVISION 1, SUPPLEMENT 1
"REACTOR VESSEL STRUCTURAL INTEGRITY"

Gentlemen:

The purpose of this letter is provide the NRC with the 90 day response to Generic Letter 92-01, Revision 1, Supplement 1, "Reactor Vessel Structural Integrity." The response is provided in the attachment to this letter.

Questions regarding this matter may be referred to Mr. T. D. Walt at (919) 362-2711.

Sincerely,

W R Robinson

SDC/sdc

Mr. W. R. Robinson, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, contractors, and agents of Carolina Power & Light Company.

Darlene S. Yarborough
Notary (Seal)

My commission expires: 2-6-2000

DARLENE S. YARBOROUGH NOTARY PUBLIC HARNETT COUNTY, NC

c: Mr. S. D. Ebneter
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RESPONSE TO GL 92-01, REV. 1, SUPPLEMENT 1.

The U.S. Nuclear Regulatory Commission (NRC) issued Supplement 1 to Generic Letter (GL) 92-01, Revision 1, "Reactor Vessel Structural Integrity" to require that addressees identify, collect and report any new data pertinent to analysis of structural integrity of their reactor pressure vessels (RPVs) and assess the impact of that data on their RPV integrity analyses relative to the requirements of Section 50.60 of Title 10 of the Code of Federal Regulations (10 CFR 50.60), 10 CFR 50.61, Appendices G and H to 10 CFR 50, (which encompass pressurized thermal shock (PTS), pressure-temperature (P-T) limits and upper-shelf energy (USE) evaluations) and any potential impact on low temperature overpressure (LTOP) setpoints.

NRC Request:

Specifically, Supplement 1 of Generic Letter 92-01, Revision 1, requested licensees to provide the following information:

Within 90 days,

(1) a description of those actions taken or planned to locate all data relevant to the determination of RPV integrity, or an explanation of why the existing data base is considered complete as previously submitted;

Within 6 Months,

(2) an assessment of any change in best estimate chemistry based upon consideration of all relevant data;

(3) a determination of the need for use of the ratio procedure in accordance with the established Position 2.1 of Regulatory Guide 1.99, Revision 2, for those licensees that use surveillance data to provide a basis for the RPV integrity evaluation; and

(4) a written report providing any newly acquired data as specified above and (a) the results of any necessary revisions to the evaluation of RPV integrity in accordance with the requirements of 10 CFR 50.60, 10 CFR 50.61, Appendices G and H to 10 CFR Part 50, and any potential impact on the LTOP or P-T limits in the technical specifications or (b) a certification that previously submitted evaluations remain valid. Revised evaluations and certifications should include consideration of Position 2.1 of Regulatory Guide 1.99, Revision 2, as applicable, and any new data.

CP&L's Response :

The Generic Letter requested licensees to reexamine sources of data to locate the data relevant to the determination of RPV integrity. Such data may include: chemical composition, heat treatment, RPV fabrication records, mechanical property data, and

surveillance data. Carolina Power & Light Company (CP&L) is seeking to supplement the data already available, as described below, in an effort to ensure that pertinent data have been taken into account in the analysis of the Shearon Harris Nuclear Power Plant (SHNPP) RPV integrity. A significant portion of that effort is CP&L's participation in the Westinghouse Owners Group (WOG), which is compiling the WOG RPV database.

As described in the GL Supplement, the predominant (identified) variables that affect RPV integrity are chemistry variations of copper and nickel in weld joints used in the fabrication of RPVs. The chemistry variability observed in some welds has been attributed primarily to two past practices by weld wire manufacturers and RPV fabricators for some early vintage RPVs: (1) the addition of a copper coating, or "flashing," to the Submerged Arc Welding (SAW) weld wire, and (2) the inclusion of a cold wire nickel feed (separate from the primary electrode) in the SAW process. The addition of a copper coating has been determined to contribute to copper variability in the welds while inclusion of a cold wire nickel feed has been determined to contribute to nickel variability in the welds.

Based upon a preliminary assessment, CP&L does not consider this issue to be a safety significant concern for the SHNPP RPV for the following reasons:

- A preliminary assessment indicates that the SHNPP RPV does not have the source of the chemistry variability problem. A review of preliminary data (i.e., a weld wire material specification from the RPV manufacturer) suggests that neither copper coated weld wire nor cold nickel wire feed were used in the weld fabrication of the SHNPP RPV weldments. CP&L is not aware of any significant chemistry variability issues reported for weld joints fabricated using un-coated weld wire and without the separate nickel wire addition. Accordingly, it is not expected that a significant variability in copper or nickel content would exist for any beltline weld joint within the SHNPP RPV. Therefore, CP&L does not expect major deviations from the chemistry composition and resulting chemistry factors provided to the NRC in our previous response to GL 92-01, Revision 1.

- Based on preliminary reviews of the NRC Reactor Vessel Integrity Database (RVID) and the WOG RPV database as they exist to date, a plant has been identified that has a weld wire heat number that is common with weld wire used in the SHNPP RPV circumferential weld. The reported copper and nickel chemistry for their weld wire is consistent with SHNPP's chemistry.

- SHNPP's controlling material is beltline plate as previously reported to the NRC in CP&L letters dated February 26, 1993 (HNP-93-059) and April 2, 1992 (HNP-92-097). It is plate material upon which the current P-T limits are based and for which the end-of-license (EOL) pressurized thermal shock reference temperature (RT_{pts}) value is calculated, rather than the weld material.

- As identified in prior correspondence, the SHNPP RPV materials have significant margin to the PTS screening criteria. The current projected RT_{pts} value at EOL is 211°F, based upon plate material. The highest RT_{pts} value for axial weld material is currently projected at 125°F. When compared to the screening criterion of 270°F for these materials, it is evident that a wide margin exists. The current

projected RT_{pts} value for the circumferential weld material is 107°F compared to a screening criterion of 300°F, thus indicating a greater margin than plate material or the axial weld.

As requested by the GL supplement, the following actions are planned:

(1) Readily available information on reactor pressure vessel integrity data and records will be sought after and reviewed from sources such as SHNPP quality assurance records, RPV fabricator, NRC RVID, the Westinghouse Owners Group "RPV Data" and EPRI "Prep" databases, and other domestic utilities as applicable and relevant, i.e., those plants who have RPV beltline plate or weld materials that are common with SHNPP. Based on CP&L's participation in the NRC/NEI workshop on July 11, 1995 through July 13, 1995, CP&L understands that the "readily available" information need not include overly costly efforts such as new testing activities, obtaining proprietary information, or extensive data searches by the sources.

2) The impact of newly acquired data will be considered on variables pertaining to RPV integrity, e.g., unirradiated nil-ductility transition reference temperature (RT_{ndt}), unirradiated USE, best estimate chemistry compositions, chemistry factors, adjusted nil-ductility transition reference temperature (ART_{ndt}), RT_{pts} and USE at EOL. A determination will be made on the need to use the "ratio procedure" as described in Regulatory Guide 1.99, Revision 2, Position 2.1. A written response will be provided to the NRC describing any newly acquired data and significant effects on the RPV integrity parameters. This response will address the operating P-T limits and LTOPS setpoints, as applicable. As requested by Supplement 1 of the Generic Letter CP&L will submit the response by November 19, 1995.

In summary, based upon the above, CP&L does not consider this issue to be a safety significant concern for the SHNPP RPV. As committed above, an effort will be made to locate additional RPV integrity data and report the results of an evaluation of the data by November 19, 1995.