August 13, 2004

Mrs. Margaret Harding, Manager
Nuclear Fuel Engineering
Global Nuclear Fuel
P. O. Box 780
Wilmington, NC 28402

SUBJECT: CORRECTION OF FINAL SAFETY EVALUATION FOR GLOBAL NUCLEAR FUEL (GNF) LICENSING TOPICAL REPORT NEDC-33107P, "GEXL80 CORRELATION FOR SVEA96+ FUEL" (TAC NO. MC0666)

Dear Mrs. Harding:

On July 19, 2004, the Commission issued the final safety evaluation (SE) to Global Nuclear Fuel (GNF) for Licensing Topical Report (LTR) NEDC-33107P, "Gexl80 Correlation For Svea96+ Fuel." By letter dated June 1, 2004, GNF provided comments on the draft SE issued on April 20, 2004. The comments provided were incorporated into the final SE. By teleconference on August 2, 2004, GNF informed the NRC that it has determined that an inconsistency exists in the SE which resulted from the changes proposed by the June 1, 2004, letter. The staff has reviewed the SE and agrees with GNF that the SE needs to be revised. Enclosed is a revised page 7 which removes the discrepancy. The accepted version of the LTR should also incorporate this letter.

If you have any questions, please contact Alan B. Wang at (301) 415-1445.

Sincerely,

/RA by SDembek for/

Herbert N. Berkow, Director
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Project No. 712

Enclosure: Revised Page 7 of SE

cc w/encl: See next page

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3.6 Thermal-Hydraulic Compatibility of the GE14 Fuel with the SVEA96+ Fuel

The September 8, 2003, submittal by PSEG (Reference 4), provided independent verification of the conclusion made by GNF that the GE14 and SVEA96+ fuels are thermal-hydraulically compatible.

Westinghouse provided the thermal-hydraulic modeling data for the legacy SVEA96+ fuel [PSEG File HCA.5-0020] and GNF for the GE14 fuel [PSEG File HCG.5-0004]. As part of the new fuel introduction (NFI) work scope, GNF provided PSEG a report containing several mixed core evaluations to support the conclusion that the two distinct fuel designs are thermal-hydraulically compatible [PSEG File NFVD-GE-2003-002-00]. PSEG has taken the data from each fuel vendor and modeled each fuel type using the industry computer code FIBWR2 (Reference 9) as an independent means of verifying the conclusions arrived at by GNF.

The September 8, 2003, PSEG submittal first summarized the FIBWR2 benchmark results of modeling the full cores of each fuel type at various power and flow conditions. The FIBWR2 model for each fuel type was benchmarked with the thermal-hydraulic analysis results provided by the respective fuel vendors. Included also in the September 8 submittal, is a summary of the core performance for a number of projected transition or mixed cores at the same power and flow conditions to verify the fuel vendor's conclusions regarding the thermal hydraulic compatibility of the SVEA96+ and GE14 fuel designs.

The GE14 fuel design consists of 92 fuel rods arranged in a 10x10 lattice array, with two water tubes displacing eight fuel rod positions. Fourteen of the 92 fuel rods are part-length. Additional components in a GE14 assembly include: upper and lower tie plates, spacer grids, a handle that attaches to the upper tie plate for lifting, and a channel box that slides over the fuel rods and has a spring loaded fit against the lower tie plate. As part of the current fuel vendor transition, GNF supplied GE14 thermal hydraulic performance data [PSEG File HCG.5-0004] at several power and flow conditions for a rated power of 3952 MWt, the future extended power uprate (EPU) power level, using the proprietary GNF computer code ISCOR (GESTAR II). The PSEG Hope Creek FIBWR2 model [PSEG File HCT.6-0042] was benchmarked against this data. Table 3.3 of Reference 3 displays the pressure loss coefficients that were provided for the upper and lower tie plate and the spacers. The inlet loss coefficients are the values traditionally used at Hope Creek to model the central and peripheral bundle orifices, relative to the reference flow area. Table 3.4 of the Reference 3 displays a sample comparison of the GE14 information and the FIBWR2 results using a 1.4 peak to average chopped cosine axial power shape.

With respect to the ranges of operability, GNF provided the results of analysis of the reference loading pattern for the Hope Creek Cycle 13 that has core characteristics that are representative of the mixed cores that will be encountered during the transition cycles. The CPR was extracted for all the SVEA96+ fuel throughout the entire cycle.