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U. S. Nuclear Regulatory Commission
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Subject: Entergy Operations, Inc.
Implementation of GL 83-11, Supplement 1, for Co-Resident Fuel CPR
Calculations

Grand Gulf Nuclear Station
Docket No. 50-416
License No. NPF-29

River Bend Station
Docket No. 50-458
License No. NPF-47

CNRO-2000-00024

Ladies and Gentlemen:

Generic Letter GL 83-11 Supplement 1, "Licensee Qualification for Performing Safety Analyses" delineates guidelines for qualifying licensees to use NRC-approved analysis methods. Entergy Operations is making a commitment to implement these guidelines for safety analyses using Siemens Power Corporation (SPC) methodology to apply approved SPC critical power correlations to co-resident fuel. Entergy will be performing analyses to determine additive constants and additive constant uncertainties for the Global Nuclear Fuel (GNF) GE11 fuel type for use with a SPC critical power correlation using the methodology described in EMF-2245 (P), *Application of Siemens Power Corporation's Critical Power Correlations to Co-Resident Fuel*. This methodology is currently under review by the NRC. Entergy will be using the methodology after NRC approval.

Entergy has completed a technology transfer program with SPC to enable Entergy to apply this methodology. As outlined in the guidelines found in GL 83-11 Supplement 1, the technology transfer program consisted of the following elements:

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- Eligibility
- Application Procedures
- Training/Qualification of Personnel
- Comparison Calculations
- Quality Assurance and Change Control

More details about the technology transfer program are provided in the attachment to this letter.

If you have any questions concerning this matter, please feel free to contact Adrienne Smith at (601) 368-5275.

Sincerely,



MAK/ABS/baa
attachment

cc: Mr. W. A. Eaton (GGNS)
Mr. R. K. Edington (RBS)
Mr. G. J. Taylor (ECH)

Ms. J. L. Dixon-Herrity, NRC Senior Resident Inspector (GGNS)
Mr. J. F. Harold, NRR Project Manager (RBS)
Mr. E. W. Merschoff, NRC Region IV Regional Administrator
Mr. S. P. Sekerak, NRR Project Manager (GGNS)
Mr. T. W. Pruett, NRC Senior Resident Inspector (RBS)

TECHNOLOGY TRANSFER PROGRAM ELEMENTS

Eligibility

The technology transfer and this letter only apply to the codes and methods described in EMF-2245 (P) for applying an approved SPC critical power correlation to co-resident fuel. EMF-2245 (P) provides a methodology for developing additive constants and additive constant uncertainties for a co-resident fuel type for use with NRC-approved SPC critical power correlations. The methodology used by Entergy for determining additive constants and the associated uncertainty is defined by the following SPC critical power correlation topical reports:

- ANF-1125(P)(A) and Supplements 1 and 2, *ANFB Critical Power Correlation*, Advanced Nuclear Fuels Corporation, April 1990
- EMF-1997(P)(A) Revision 0, "*ANFB10 Critical Power Correlation*," Siemens Power Corporation, July 1998
- EMF-2209(P)(A) Rev.0, *SPCB Critical Power Correlation*, Siemens Power Corporation, May 2000

The critical power correlation additive constant methodology has been successfully applied by SPC to a number of different fuel designs. Entergy will not be using any new methodologies or make any changes to the existing methodology.

Application Procedures

The methodology for applying SPC critical power correlations to co-resident fuel is described in EMF-2245. This methodology is applicable to the Entergy BWR cores with co-resident fuel. Entergy will be using the Direct Correlation Application process as described in EMF-2245. The three critical power correlation documents (ANF-1125, EMF-1997, and EMF-2209) are used as the basis for a calculation procedure to ensure that the use of the approved methods is consistent with the bases for NRC approval. As this is expected to be a one-time analysis with no ongoing applications of the methodology, a separate calculation procedure was not developed. Rather, the relevant requirements and limitations of the methodology were incorporated into the calculation documentation.

Training/Qualification of Personnel

The technology transfer program provided by SPC included methodology for determining additive constants and associated statistics. Only personnel receiving training from either SPC or an individual previously qualified in the use of this methodology will be considered qualified to perform analyses using the method. Initial training of two individuals was conducted by SPC. A third individual received training conducted by one of the individuals trained by SPC in the use of the methodology.

The training included both classroom and job training (OJT) elements. To demonstrate successful implementation of the methodology, Entergy applied the methodology to a simulated set of test data for which SPC had determined the correct results. SPC reviewed

the Entergy results to confirm correct application of the methodology. Upon satisfying the requirements of the technology transfer demonstration, SPC issued a letter to Entergy confirming that the technology transfer was successfully completed.

Comparison Calculations

Entergy has satisfactorily performed comparisons to GE experimental critical power test data to demonstrate correct application of the methodology. The additive constants obtained by applying the SPC additive constant methodology were used with the corresponding SPC critical power correlation to calculate predicted critical power for the conditions in the test database. A statistical analysis was performed in accordance with SPC critical power correlation qualification methods to demonstrate the acceptability of the results. These comparisons have been documented in a calculation prepared in accordance with Entergy quality assurance program requirements.

Quality Assurance and Change Control

As part of the technology transfer, SPC will notify Entergy of any significant changes in application methodology. Upon request such methodology upgrades will be provided to Entergy. Minor code upgrades that do not involve a change in application methodology are provided to Entergy along with updated user documentation, a release notice explaining the nature of the code modification, and any special instructions for use of the updated code.

Calculations and analyses performed by Entergy using the SPC methodology will be performed per the Entergy quality assurance program.