MISSISSIPPI POWER & LIGHT COMPANY
Helping Build Mississippi
P. O. BOX 1640, JACKSON, MISSISSIPPI 39215-1640

August 15, 1985

NUCLEAR LICENSING & SAFETY DEPARTMENT

U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D. C. 20555

Attention: Mr. Harold R. Denton, Director

Dear Mr. Denton:

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-29
File: 0260/M-181.1
High Density Spent Fuel Racks
Final Response to SEB Questions
AECM-85/0252

By letter dated July 5, 1985 the NRC staff requested additional information related to the structural analyses presented in Mississippi Power & Light's (MP&L) amendment request to allow for installation of high density spent fuel racks at Grand Gulf Nuclear Station Unit 1. MP&L provided a partial response to the staff's request by letter dated July 29, 1985 (AECM-85/0229).

The response attached to this letter pertaining to the numerical solution of the dynamic analysis of the subject racks completes MP&L's response to the NRC staff's request. If there are additional questions, please contact this office.

Yours truly,

L. F. Dale
Director

MLC/JGC:dmm
Attachment

cc: (See Next Page)

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1/1

cc: Mr. J. B. Richard (w/a)
Mr. O. D. Kingsley, Jr. (w/a)
Mr. R. B. McGehee (w/a)
Mr. N. S. Reynolds (w/a)
Mr. H. L. Thomas (w/o)
Mr. R. C. Butcher (w/a)

Mr. James M. Taylor, Director (w/a)
Office of Inspection & Enforcement
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Washington, D. C. 20555

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101 Marietta St., N. W., Suite 2900
Atlanta, Georgia 30323

A. SPENT FUEL RACK SEISMIC ANALYSIS

A.1 QUESTION

With respect to the numerical solution of the dynamic analysis, please provide the following:

a. Proof of satisfactory convergence and stability of the numerical solution of the equations.

b. The integration time step used, and its relationship to that integration time step forming the boundary of stable solutions.

A.1 ANSWER

The integration time step used in all dynamic analyses in Grand Gulf Unit 1 fuel pools was 0.2×10^{-4} seconds. Table 1 shows the convergence study performed on G-rack (11 x 11 module). It is found that the converged result is in reasonable accord with the 0.2×10^{-4} second solution.

Table 1

DISPLACEMENT CONVERGENCE STUDY

Time Step, T (sec)	Maximum Displacement (inch)	Coincident Time Instant (sec)
0.3×10^{-4}	1.402	11.84
0.2×10^{-4}	1.27	7.44
0.15×10^{-4}	1.29	8.66
0.1×10^{-4}	1.33	8.44
0.75×10^{-5}	1.33	8.43