

JUL 5 1985

Docket No. 50-416

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Mr. Jackson B. Richard  
Senior Vice President, Nuclear  
Mississippi Power and Light Company  
Post Office Box 23054  
Jackson, Mississippi 39205

SUBJECT: GRAND GULF NUCLEAR STATION UNIT 1-HIGH DENSITY SPENT FUEL RACKS

Dear Mr. Richard:

The NRC staff is reviewing the Mississippi Power and Light Company submittal dated May 6, 1985 which requests an amendment to Grand Gulf Unit 1 license to allow installation of high density spent fuel racks in the upper containment pool and in the spent fuel storage pool. The staff finds that the additional information described in the enclosure is needed to complete the review.

In order to meet the schedule for completion of this review, you are requested to provide the information described in the enclosure by July 15, 1985. Provide one copy directly to our consultant:

R. C. Herrick  
Franklin Research Center  
20th and Pace Street  
Philadelphia, Pa 19103

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

*K N Jabbar*

*for* Elinor G. Adensam, Chief  
Licensing Branch No. 4  
Division of Licensing

Enclosure

DL:LB#4  
LKintner:c1  
7/3/85

*See Previous  
Correspondence*

*KNTJ*  
LA:DL:LB #4  
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7/5/85

*KNTJ*  
C:DL:LB#4  
EAdensam  
7/5/85

GRAND GULF

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Senior Vice President, Nuclear  
Mississippi Power & Light Company  
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Jackson, Mississippi 39205

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Grand Gulf Nuclear Station  
Mississippi Power & Light Company  
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Port Gibson, Mississippi 39150

The Honorable William J. Guste, Jr.  
Attorney General  
Department of Justice  
State of Louisiana  
Baton Rouge, Louisiana 70804

Mr. Oliver D. Kingsley, Jr.  
Vice President, Nuclear Operations  
Mississippi Power & Light Company  
P.O. Box 23054  
Jackson, Mississippi 39205

ENCLOSURE 1

MISSISSIPPI POWER & LIGHT COMPANY  
GRAND GULF NUCLEAR STATION, UNIT 1

Request for Additional Information Regarding the Proposed  
High Density Spent Fuel Rack Installation [1]

A. SPENT FUEL RACK SEISMIC ANALYSIS

1. 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.
2. Contrary to the discussion of computed results in Section 6.6 [1], the dimensions shown in Figures 2.1 and 2.2 indicate that no gap exists between the walls and the proposed fuel racks that are placed adjacent to the walls. Please provide a full description of the space between adjacent racks and between the racks and the walls.
3. Figures 2.1 and 2.2 of the Grand Gulf Licensing Report [1] indicate that fuel racks of various dimensions and geometric orientations are placed adjacent to each other. Also, racks of the same dimensions and geometric proportions may be loaded with a different number of spent fuel assemblies to cause a variation in the mass from rack to rack. Therefore, high probability exists for adjacent racks to have dynamic out-of-phase motion with each other, effectively reducing the gap per rack module to half the value shown and discussed in the licensing report. This consideration would affect the fluid coupling parameters used in the dynamic analysis as well as the gap width to which displacements are compared. Please provide response data indicating that the rack modules do not impact under this out-of-phase motion condition.
4. While the licensing report [1] provides technical descriptions of the non-linear dynamic displacement analysis and the basis of the stress analysis methods, the rationale for transfer of the non-linear dynamics results for use by the subsequent linear stress analysis was not described. Please provide the technical basis for this operation as well as any checks employed to assure its validity in this application.

B. DROPPED FUEL ACCIDENT I

1. Please be more precise as to the total drop height associated with the statement "dropped from 36 inches above a storage location" as stated in Section 7.1 of the Licensing Report [1].

C. LINER INTEGRITY ANALYSIS

1. For liner stress under the worst rack foot loading, it is not clear from the discussion on pages 7-3 and 7-6 of the Licensing Report [1] that the "max liner direct stress" is a tensile stress and how it was calculated. Please supply more detail.

D. SPENT FUEL POOL DYNAMIC ANALYSIS

1. Please identify all masses considered to be acting with the spent fuel pool floor in the modal analysis and the dynamic analysis. Please explain why these masses are included and why other masses associated with the spent fuel pool should be excluded.

Reference

1. Mississippi Power and Light Company, Licensing Report on High Density Spent Fuel Racks, Grand Gulf Nuclear Station, Unit 1, report submitted as Attachment 2 to letter from Mississippi Power and Light Company (O. D. Kingsley) to the NRC (H. R. Denton), dated May 6, 1985.

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In order to meet the schedule for completion of this review, you are requested to provide the information described in the enclosure by July 10, 1985. Provide one copy directly to our consultant:

R. C. Herrick  
Franklin Research Center  
20th and Pace Street  
Philadelphia, Pa 19103

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Sincerely,

Elinor G. Adensam, Chief  
Licensing Branch No. 4  
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