MISSISSIPPI POWER & LIGHT COMPANY
Helping Build Mississippi

October 15, 1981

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
Units 1 and 2
Docket Nos. 50-416 and 50-417
File 0260/0862
Transmittal of Responses to
NRC SER Concerns
AECM-81/406

In response to your request for additional information, Mississippi Power & Light Company is submitting the enclosed miscellaneous materials updating information pertaining to the Grand Gulf Nuclear Station Safety Evaluation Report (NUREG-0831).

If you have any questions or require further information, please contact this office.

Yours truly,

L. F. Dale
Manager of Nuclear Services

JHS/JGC/JDR:mb

Attachments: 1. Discussion of the Stress Analysis of Members in the Auxiliary Building
2. Clarification of Frequencies in the Response to New Madrid Fault Extension

cc: Mr. N. L. Stampley
Mr. R. B. McGehee
Mr. T. B. Conner
Mr. G. B. Taylor

Mr. Victor Stello, Jr., Director
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

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Attachment 1 to AECM-81/406

CONCERN: Stress Analysis of Members in the Auxiliary Building

RESPONSE: Attached is a technical justification for the selection of one girder, an interior wall, and three steel beams and a justification for the equation used to perform the stress analysis of these members in the auxiliary building.

Each structural member in the auxiliary building is designed to function for the load factor equations of FSAR subsection 3.8.6. A comparison of the load combinations used by Grand Gulf and those contained in the SRP is shown in Tables 3.8-35 and 3.8-36. Each SRP equation is compared to the corresponding Grand Gulf equation on a case basis and the degree of conservatism of the Grand Gulf equation with respect to the corresponding SRP equation is noted. Table 3.8-35 reveals that Grand Gulf equation (2) is less conservative than SRP equations (2a) and (2b) for concrete structures. Table 3.8-36 reveals that Grand Gulf equation (2) is less conservative than SRP equation (2) for steel structures. Consequently, FSAR Table 3.8-37 (for concrete structures) and Tables 3.8-38 through 3.8-40 (for steel structures) were generated to determine the degree of conservatism of the Grand Gulf design for those cases identified in Tables 3.8-35 and 3.8-36 where the Grand Gulf criteria was less conservative than the SRP criteria. Since FSAR Tables 3.8-37 through 3.8-40 reveal that the Grand Gulf design is conservative where the SRP criteria bounds the Grand Gulf criteria, the Grand Gulf design is conservative with respect to the SRP criteria for the auxiliary building.

The concrete interior wall analyzed in Table 3.8-37 is a representative, critical, highly stressed structural element in the auxiliary building which must withstand a range of loadings including earthquake, compartment pressure and pipe anchor loads. The structural integrity of this element is critical to the functional design of the auxiliary building. Similarly, the beams and girder analyzed in Tables 3.8-38 through 3.8-40 are representative, critically loaded and highly stressed structural elements which must withstand pipe anchor, earthquake and safety-related equipment loads. These members are critical to the functional design of the auxiliary building since failure of any of these elements would result in partial collapse of the floor. These members were chosen based upon a review of the most highly stressed structural elements in the auxiliary building.

Attachment 2 to AECM-81/406

CONCERN: Clarify Response to the New Madrid Fault Extension. Frequencies are shown in Table 3.7-11 below 2 Hz.

RESPONSE: The frequencies listed in Table 3.7-11 below 2 Hz are 1.64 Hz for the East-West direction of the containment building (flooded) seismic response and 0.19 Hz for the Horizontal Standby Service Water Cooling Tower (SSWCT) Basin seismic response.

For the containment building frequency of 1.64 Hz, this mode contributes only a small portion of the total containment response for a fully flooded containment condition (which operationally will not happen until a LOCA). For the SSWCT Basin frequency of 0.19 Hz, this mode is a water sloshing mode and the change in design spectra below 2 Hz will not significantly affect this response. Table 3.7-11 is attached and has been modi[illegible] to reflect this effect. Also, Figure 3.7-68a shows primary cont[illegible]ent modes below 2 Hz. This is because the first containment mode at 0.23 Hz is the upper pool water sloshing mode. This mode does not contribute significantly to total containment response and was not included in Table 3.7-11. Figure 3.7-68d does include the 0.19 Hz water sloshing modal frequency also contained in Table 3.7-11.

TABLE 3.7-11

SIGNIFICANT NATURAL FREQUENCIES FOR CATEGORY I STRUCTURES

Structures	Direction	Significant Natural Frequencies (cps)					
(Operating condition) Containment building	E-W	2.53	3.08	5.38	6.17	6.94	
		7.38	8.82	10.13	16.03	18.41	
		24.21	25.74	29.36	29.75	30.3	
	N-S	2.53	3.08	5.37	6.17	6.94	
		7.40	8.82	10.13	16.26	18.64	
		23.75	25.01	29.36	29.67	30.18	
	Vertical	5.08	8.99	15.59	23.31	28.85	
		31.52	43.27				
(Flooded to El. 208.8) Containment building	E-W	1.64	2.07	3.41	4.69	5.56	
		6.33	7.10	8.87	9.84	13.97	
		14.81	16.80	19.22	20.33	23.4	
	Vertical	4.2	8.96	15.48	20.29		
		27.03	31.52				
Auxiliary building	E-W	4.05	8.69	12.25	17.20		
		26.05	33.02				
	N-S	3.7	8.91	14.47	18.34		
		25.58	35.65				
	Vertical	6.09	25.5	39.2			
Control building	E-W	3.65	9.48	18.01	22.85	36.1	
	N-S	4.18	9.78	17.15	24.75	37.8	
	Vertical	6.82	27.06				
Diesel generator building	N-S	5.29	8.46	31.62			
	E-W	5.38	10.35	38.41			
	Vertical	7.87	69.57				
Standby service water cooling tower and makeup basin	Horizontal	0.19*	4.86	11.4	19.99		51
		22.29	35.97				
	Vertical	7.22	33.4				

* Water Sloshing Frequency | 51