UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SEP 9 1980

Docket Nos.: 50-416/41'

Mr. J. P. McGaughy
Assistant Vice President - Nuclear Production
Mississippi Power and Light Company
P. O. Box 1640
Jackson, Mississippi 39205

Dear Mr. McGaughy:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - GRAND GULF NUCLEAR STATION, UNITS 1 AND 2

As a result of our review of the information contained in the Final Safety Analysis Report for the Grand Gulf Nuclear Station, Units 1 and 2, we have developed the enclosed request for additional information. Included are questions from the Auxiliary Systems Branch and the Accident Evaluation Branch.

We request that you amend your Final Safety Analysis Report to reflect your responses to the enclosed requests as soon as possible and to inform the Project Manager, Joseph A. Martore, of the date by which you intend to respond.

Sincerely,

Robert L. Tedesco
Assistant Director for Licensing
Division of Licensing

Enclosure:
As stated

cc: See next page

8009260531

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Enclosure

Accident Evaluation Branch
Grand Gulf Units 1 & 2 - Q-2's

312.19 (11.3, 15.7.1) Section 11.3.2.1.6.3 discusses the bypass mode for the charcoal adsorbers in the waste gas treatment system and indicates that it may be "desirable to use the bypass for short periods of time during startup or normal operations." The section notes that there is a high high-high alarm on the process monitor to isolate the system from the vent if established release limits are exceeded. Analyze the bypass isolation for single failures.

312.20 (6.5.3, 15.6) The secondary containment volume claimed includes the enclosure building, steam line tunnel, and auxiliary building volumes, all areas of which, in the event of an accident, are to be reduced to sub-atmospheric pressure by exhaust through the Standby Gas Treatment System. Approximately uniform pressure reduction is to be achieved by the control of dampers directing air flow into the recirculation fans in the enclosure building ventilation system. Analyze in detail the response of this ventilation system to unequal leakage, and to air flows differing from those estimated in Figure 6.5-4. In particular, include in the analysis the following effects:

(1) The release of high temperature fluids into the secondary containment volume.

(2) The possibility of moisture collection in long pressure sensing lines.

(3) The failure of a damper, the possibility of rapid cycling of motor-operated two-position dampers in the event of changing air flows, and the puncture or deformation of ductwork.

(4) The effect upon the rate of release to the environment by the leakage model described in Figure 15.6-3 of different air flows. (Note that Figure 15.6-3 is inconsistent with Figure 6.5-4, in that the mean residence time in the enclosure building of effluent from the MSIV leakage collection system is calculated to be 130 minutes from information in Figure 15.6-3, and 110 minutes from that in Figure 6.5-4.)

312.21 (6.4) Section 6.4.2.1 of the FSAR states that the safety-related panels of the upper cable spreading room are included within the control room ventilation envelope. Please provide additional information describing in detail why this arrangement poses no safety problems with respect to control room habitability. The potential involvement of control room operators, directly or indirectly, in activities related to the cable spaces, such as fire fighting, should be included. The submittal should address the effects of smoke and noxious fumes which could originate within the cable spaces. Potential habitability impacts upon alternate/reactor shutdown procedures should be decribed. The applicant is encouraged to identify and evaluate habitability improvements which could minimize the potential problems associated with the inclusion of these cable spaces within the envelope, including removal of these cable spaces from within the control room habitability envelope.

Auxiliary Systems Branch
Second Round Request for Additional Information
Grand Gulf Nuclear Station, Units 1 and 2
Docket Nos: 50-416 and 50-417

010.19 (RSP) (6.7) Your response to Question 010.08 is not acceptable. In keeping with past practice, it is our position that the plant Technical Specifications impose a limit of 11.5 scfh for the main steam isolation valve (MSIV) leak rate and a leak rate verification test frequency consistent with plant Technical Specifications for other operating BWRs. Modify your response accordingly.

010.20 (9.1.1) a) Your response to question 010.10 is not acceptable. Verify that you have determined that your new fuel storage rack arrangement will maintain a K_{eff} of less than or equal to 0.98 with fuel of the highest anticipated reactivity in place in the new fuel storage racks assuming optimum moderation (foam, small droplets, spray, and fogging).

b) You state in subsection 9.1.1.2 a fuel spacing of 7 inches minimum center-to-center within a new fuel storage rack and 12 inches minimum between adjacent racks results in a K_{eff} of not more than 0.95. In subsection 9.1.1.3.2e you state that the minimum center-to-center spacing within a rack is 6.535 inches and 11.875 inches between adjacent rows. Confirm that K_{eff} is not more than 0.95 when the lesser dimensions given above are used in the calculations of K_{eff}.

010.21 (9.1.2) a) Your response to question 010.11 is not acceptable. Indicate whether or not the spent fuel pool liner plate is designed to seismic Category I requirements. If it is not, describe the means provided by your design to assure that failure of the liner plate as a result of an SSE will not result in 1) significant release of radioactivity due to either mechanical damage to the spent fuel, or due to water loss from the pool and subsequent overheating of the spent fuel, and 2) loss of ability to cool the fuel due to flow blockage caused by any portion of the liner plate falling on top of the fuel racks.

b) You state in subsection 9.1.2.2 a fuel spacing of 7 inches minimum center-to-center within a spent fuel storage rack and 12 inches minimum between adjacent racks results in a K_{eff} of not more than 0.95. In subsection 9.1.2.3.2e you state that the minimum center-to-center spacing within a rack is 6.535 inches and 11.875 inches between adjacent rows. Confirm that K_{eff} is not more than 0.95 when the lesser dimensions given above are used in the calculation of K_{eff}.

010.22 (9.1.3) You state that the fuel pool cooling system will maintain the temperature of the fuel pool below 125°F during normal operating conditions and the temperature may be allowed to rise to 150°F when the maximum possible heat load is present. Provide the heat loads under these two conditions, and the fuel pool heat exchanger capability as a function of the pool temperature. Verify that the above calculated heat loads were determined in accordance with Branch Technical Position ASB 9-2.

010.23 (9.2.1) (9.2.5) Your response to question 010.16 is not acceptable. Provide responses to the following concerns in order that we may assess your ultimate heat sink (UHS) design against the positions of Regulatory Guide 1.27, Rev. 2.

a) In subsection 9.2.1.3 <u>Safety Evaluation</u>, certain assumptions are made as a basis to show adequacy of the system. One assumption made is loss of a standby diesel generator (Unit 1, Division 1). You claim this results in the loss of standby service water (SSW) loop A. This is not true. The redundant SSW pump is connected to the 1E division 1 bus of Unit 2 and would therefore be available. What would be lost would be the loads on the Unit 1 division 1 bus which would include among other loads, two of the cooling tower fans and the RHR-A system for Unit 1. Tables 9.2-14 through 9.2-20 and Figs. 9.2-28 through 9.2-42 do not reflect this. Revise the necessary information and reevaluate your UHS design accordingly.

b) Table 9.2-21 provides a listing of SSW loads following a DBA. Under loop A are shown loads that would not exist using your assumptions; i.e., standby diesel generator cooler and RHR-A Unit 1 loads. However, the table does not list the loop C load (HPCS system) which would exist following a DBA and loss of a standby diesel. The existing table would presumably be valid for Unit 2. Prepare a separate table for Unit 1, and reevaluate the UHS performance for the revised heat loads.

c) The text states that Figs. 9.2-5 and 9.2-6 show the heat rate into each of the two cooling towers. However, the figures do not show any heat contribution from loop C. Table 9.2-3 purports to show SSW system loads. Again, loads are shown that would not exist under your assumptions. Also, "Design Duty" loads are shown without stating whether the loads are for one reactor or two. Revise the necessary information and reevaluate your UHS design accordingly.

d) Tables 9.2-14 and 9.2-15 and Figs. 9.2-28 and 9.2-31 give the total integrated heat rejection for the 30 days following a DBA; Basin A at 4.74×10^{10} BTU and Basin B at 13.51×10^{10} BTU for a total of 18.25×10^{10} BTU. Assuming the towers reject 86% of the heat by evaporation and 14% to sensible heat in the air and using an h_{fg} of 1043 BTU/lb., a total of 18.04×10^6 gals of water would have to evaporate to reject this much heat. On Page 9.2-5, you state that 12.8×10^6 gals would evaporate and the combined basin capacity is 13.93×10^6 gals. Resolve this apparent discrepancy and indicate how your UHS design meets the requirements of Regulatory Guide 1.27, Rev. 2, Position 1.C for providing 30 days of cooling to both units without an assured makeup capability.

e) Other items that require clarification or further information:

(1) Section 9.2.13 states that there are two service water pumps and one HPCS pump per basin. However, Fig. 9.2-1 shows a HPCS pump in basin A and none in basin B. Also it shows only one service water pump per basin. The figure is for one unit and a duplicate would show the other unit. Therefore, the relationship between these six pumps and the three cooling loops is not clear. A simplified schematic of the system arrangement should be provided to clarify this point.

(2) Provide further details concerning cooling tower basin minimum level, placement of the service water pumps, and their NPSH requirements to allow us to independently verify that adequate NPSH is available for these pumps during long term (30-day) plant cool down without additional makeup to the UHS.

(3) The FSAR does not separate pump work and sensible heat from the indicated loads. Indicate whether or not they were overlooked, neglected, or combined in other heat loads.

f) Provide the necessary disscussion and tables similar to those currently in the FSAR for the case of LOCA in one unit and cold shutdown of the other to show that the UHS can adequately reject the necessary heat to bring the plant to a safe shutdown assuming a loss of offsite power in both units with no additional failures.

Indicate the maximum length of time the UHS can operate in this mode before exceeding the design service water temperature assuming the worst design site meteorology.

010.24 (9.4.1) Describe the means provided to assure that the temperature in the control room HVAC equipment room which houses essential equipment can be maintained at acceptable levels under accident conditions and loss of the normal control building HVAC system. Include a failure mode and effects analysis which shows that no single failure could cause an unacceptably high temperature in the essential HVAC equipment room. Also, verify that the HVAC equipment necessary for maintaining control room habitability under emergency conditions is powered from the ESF busses.

010.25 (9.4.2) Describe the means provided to assure that the temperature in the room housing the spent fuel pool cooling pumps can be maintained at acceptable levels for pump operation under accident and emergency conditions when the normal fuel handling building HVAC system is not operating.

010.26 (10.3) Identify the seismic, safety class and quality group classification for the main steam shutoff (block) valves and include this information in Table 3.2-1. Also, describe the functional design and operation of these valves during accident and transient conditions including their power sources.

010.27 (10.4.5) (3.4.1) We note that the ESF switchgears are located at el. 110 ft. in the control building. Discuss the means provided to assure that this equipment and any other safety related equipment is protected against possible flooding resulting from a postulated rupture of the circulating water lines in the turbine building as a result of a seismic event and the draining of the cooling tower basin volumes into the plant.