



**ENTERGY**

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**M. J. Meisner**  
Director  
Nuclear Safety & Regulatory Affairs

November 1, 1996

U.S. Nuclear Regulatory Commission  
Mail Station P1-37  
Washington, D.C. 20555

Attention: Document Control Desk

Subject: Grand Gulf Nuclear Station  
Docket No. 50-416  
License No. NPF-29  
Initial Response to NRC Bulletin 96-03

GNRO-96/00123

Gentlemen:

On May 6, 1996 the Nuclear Regulatory Commission issued the subject bulletin regarding a safety issue that could degrade performance of the Emergency Core Cooling Systems in Boiling Water Reactors. The bulletin required, within 180 days, a report indicating whether licensees intended to comply with the requested actions, including a description of planned actions, the schedule for implementation and proposed technical specifications (if appropriate). By this letter, Grand Gulf Nuclear Station is providing the required response.

As you know, Entergy and Cleveland Electric Illuminating Company (CEI) are working cooperatively to resolve the issues raised by NRCB 96-03 for the Perry Nuclear Power Plant, River Bend Station and Grand Gulf Nuclear Station. Similarly, we have had a close working relationship with NRC staff on this issue, particularly through the BWR Owners Group. Our interactions have been constructive and valuable in framing the issues and identifying potential solutions.

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The efforts of CEI and Entergy have resulted in completion of a detailed analysis of NRCB 96-03 options and selection of Option 1 - installation of a large capacity passive strainer design - as the preferred approach. It is important to note that the specific strainer design currently under consideration may not be the optimum solution for each of our plants. Additional investigation may lead to the selection of alternative designs. In fact, as discussed below, significant work remains to translate our intentions into a workable solution.

### Design

The conceptual strainer design employs a floor mounted strainer that circles the suppression pool. The large passive strainer is designed to achieve a very low approach velocity at the surface of the strainer, sufficient to minimize compaction of debris at the strainer surface thereby allowing greater flow through the debris and the strainer. Strainer design is in accordance with Regulatory Guide 1.82, Revision 2.

The calculation methodology for determining appropriate combinations of seismic and hydrodynamic loads acting on the conceptual design is specified in GESSAR II, with one exception. In order to correctly characterize the upward loads on the strainer, Entergy and CEI have elected to use acoustic theory - a methodology that has previously been used to analyze hydrodynamic loads produced in both Mark II and III containments (references 1 and 2) .

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### References

1. *Mark II Containment Program Load Evaluation and Acceptance Criteria*, C. Anderson, *Generic Technical Activity A.8*, NUREG-0487, Supplement No. 2, U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, February 1981
2. *An Approach to Chugging Assessment of RHR Steam Discharge Condensation Oscillation in Mark III Containments*, G. K. Ashley II and T. S. Leong, Bechtel Power Corporation, March 1984

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### Testing

In addition to more generic testing performed through the BWR Owners Group, CEI and Entergy have initiated a testing program to validate that the conceptual design for a large passive strainer will perform as intended. Tests will be conducted in a ¼ scale mockup of a Mark III containment at the Factory Mutual Research Corporation test center. Testing will address a range of issues associated with strainer performance including variations in ECCS flow rates and quantities of simulated post-LOCA debris and other fouling agents. The primary data collected will relate to strainer performance including differential pressure across the strainer, debris bed thickness on the strainer and suppression pool velocity.

### License/Design Basis Change

Assuming the analytic and testing results are favorable, it will be necessary to change the licensing and design basis of the Grand Gulf facility to reflect the new strainer design. In accordance with SECY-95-300, "Nuclear Energy Institute's Guidance Document, 'Guidelines For Managing NRC Commitments'", dated December 20, 1995, Grand Gulf will evaluate the passive strainer design under 10CFR50.59. In the event we determine that an unreviewed safety question is present, NRC approval will be sought in accordance with 10CFR50.90.

The strainer designs are expected to be in accordance with Regulatory Guide 1.82, Revision 2. The use of the BWROG Utility Resolution Guidance (URG) is expected to address the options identified in the RG and achieve a solution. This guidance includes criteria and reference limits on issues which may be required to successfully address the RG.

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### Technical Specifications

NRCB 96-03 suggests the addition of technical specification surveillance requirements for passive strainer designs and suppression pool cleanliness. Such requirements are not mandated for the current ECCS strainers, nor should they be considered for a new, improved strainer design which is less susceptible to clogging than the existing strainers.<sup>1</sup> Rather, strainer and suppression pool cleanliness should be, and will be, programmatically controlled similar to other preventive maintenance practices and inservice inspection activities.

The NRCB 96-03 position on technical specifications constitutes a new staff position that if carried to its logical extreme for similar passive components would result in the addition of literally hundreds of discrete components to the technical specifications. This position is not covered by the compliance backfit discussion in NRCB 96-03 and deserves further review under 10CFR50.109<sup>2</sup>. We also note that this position is

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<sup>1</sup> We are concerned that the NRC not return to the practice which prompted the need for improved technical specifications. As noted in the supplementary information associated with the Commission's final policy statement on improved technical specifications:

"...[S]ince 1969, there has been a trend towards including in Technical Specifications not only those requirements derived from the analyses and evaluation included in the safety analysis report but also essentially all other Commission requirements governing the operation of nuclear power reactors... This has contributed to the volume of Technical Specifications and to the several-fold increase, since 1969, in the number of license amendment applications... It has diverted both staff and licensee attention from the more important requirements in these documents to the extent that it has resulted in an adverse but unquantifiable impact on safety."

<sup>2</sup> NRCB 96-03 is characterized as a compliance backfit with respect to 10CFR50.46. Since 10CFR50.46 is silent with respect to Technical Specifications, this position does not extend to requiring new Technical Specifications for passive strainers. We believe a separate application of 10CFR50.109 is necessary to address this question and will find that no substantial safety benefit results due to strainer Technical Specifications beyond that already afforded by programmatic controls.

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inconsistent with NRC guidance and agreements with the industry for processing proposed generic changes to the improved technical specifications.

### Schedule

Grand Gulf intends to make every effort to meet the implementation schedule requested by NRCB 96-03 - i.e., by the end of the first refueling outage starting after 1/1/97. Our key short-term milestones are the following:

- November 15, 1996 - Quarter scale testing complete
- November 30, 1996 - Finalize conceptual design
- December 13, 1996 - Complete analysis of testing data
- February 1, 1997 - Complete 10CFR50.59 evaluation; release strainer design for fabrication
- May, 1998 - Strainer installed

This schedule is optimistic and predicated upon several key factors. Failure to satisfy the following conditions will likely result in extending our strainer installation schedule at least one refueling cycle:

- Favorable completion of analyses supporting compliance with Regulatory Guide 1.82, Revision 2
- Favorable completion of testing supporting compliance with Regulatory Guide 1.82, Revision 2
- Determination that no unreviewed safety question is associated with implementing the strainer design.

Should we determine that an unreviewed safety question exists, it will be necessary to prepare and submit a license amendment request for NRC review and approval. At that point, further design and fabrication activity

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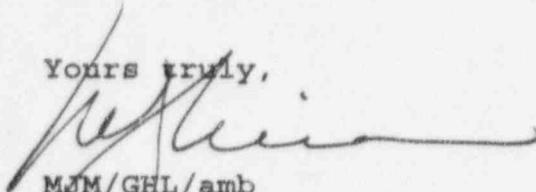
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will be suspended.<sup>3</sup> Once NRC approval is obtained, and assuming no significant changes in design result, we will determine the likelihood of meeting our implementation schedule based on the length of time elapsed during NRC's review.

As our testing and analysis proceeds, we would be happy to meet with the NRC to share our results. Please let us know if you would like to schedule such a meeting.

Should you have any questions about this response, please feel free to call Rick Ingram at (601) 437-2238 or George Lee at (601) 437-6214.

Yours truly,



MJM/GHL/amb

attachment: Affirmation

cc: (See Next Page)

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<sup>3</sup> Licensees have finite resources which must be appropriately allocated to safety significant activities. Since it is difficult, if not impossible, to predict the changes in design that may result from an NRC review, it is inconsistent with licensee responsibilities to devote resources that may later prove to be wasted. Those resources, instead must be invested in other current activities important to safety. As discussed in NRCB 96-03 and based on our determination, safe plant operation in the interim will be assured through a combination of programmatic controls for suppression pool cleanliness, minimization of potential strainer fouling material sources, and operations guidance.

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cc:

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BEFORE THE  
UNITED STATES NUCLEAR REGULATORY COMMISSION

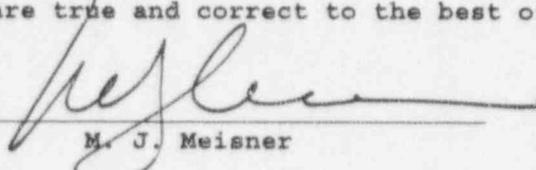
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LICENSE NO. NPF-29

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DOCKET NO. 50-416

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IN THE MATTER OF  
MISSISSIPPI POWER & LIGHT COMPANY  
and  
SYSTEM ENERGY RESOURCES, INC.  
and  
SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION  
and  
ENTERGY OPERATIONS, INC.  
\_\_\_\_\_

AFFIRMATION

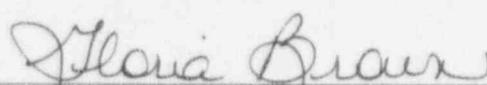
I, M. J. Meisner, being duly sworn, state that I am Director, Nuclear Safety and Regulatory Affairs of Entergy Operations, Inc.; that on behalf of Entergy Operations, Inc., System Energy Resources, Inc., and South Mississippi Electric Power Association I am authorized by Entergy Operations, Inc. to sign and file with the Nuclear Regulatory Commission, this response to NRC Bulletin 96-03; that I signed this response as Vice President, Operations GGNS of Entergy Operations, Inc.; and that the statements made and the matters set forth therein are true and correct to the best of my knowledge, information and belief.

  
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M. J. Meisner

STATE OF MISSISSIPPI  
COUNTY OF WARREN

SUBSCRIBED AND SWORN TO before me, a Notary Public, in and for the County and State above named, this 1<sup>st</sup> day of November, 1996.

(SEAL)

  
\_\_\_\_\_  
Notary Public

My commission expires:  
MISSISSIPPI STATEWIDE NOTARY PUBLIC  
MY COMMISSION EXPIRES JUNE 16, 1997  
BONDED THRU STEGALL NOTARY SERVICE