



# MISSISSIPPI POWER & LIGHT COMPANY

*Helping Build Mississippi*

P. O. BOX 1640, JACKSON, MISSISSIPPI 39215-1640

February 28, 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  
Units 1 and 2  
Docket Nos. 50-416 and 50-417  
License No. NPF-29  
File: 0260/L-814.2/M-087.0/L-860.0  
SQRT Qualification of HPCS Service  
Water Pump - SSER4, Section 3.10(1)  
AECM-85/0043

Reference: MAEC-82/208, 9/8/82  
AECM-82/435, 10/4/82  
AECM-82/489, 10/18/82

The NRC outlined concerns over the seismic qualification of the High Pressure Core Spray (HPCS) Service Water pump in SSER 2, Section 3.10 (4) and in a letter dated 9/8/82 (MAEC-82/208). These concerns were addressed by Mississippi Power & Light Company (MP&L) in AECM-82/435, dated October 4, 1982 and during a meeting with the NRC in Bethesda on October 8, 1982.

At the NRC's request, during the Bethesda meeting MP&L committed to perform an in-situ test of the HPCS Service Water Pump prior to start-up following the first refueling outage to resolve the concern over flow-induced vibrations (FIV). With the commitment to perform the in-situ testing, the HPCS Service Water Pump concerns in SSER 2, Section 3.10 (4) were resolved for full power licensing. The test commitment was made formally in AECM-82/489, dated October 18, 1982, and is documented in SSER4, Section 3.10(1).

This letter is provided to advise you of successful completion of the test. The testing was completed during the first half of 1983 and documented in NUTECH test report no. MPL-06-221.

Three parameters were monitored during normal operation of the pump. These included discharge line pressure fluctuations (flow induced excitations), pump housing accelerations (pump response), and pump shaft deflections. These parameters were monitored utilizing transducers mounted at three distinct locations. A pressure sensor was used to monitor discharge line pressure fluctuations. Two accelerometers were positioned adjacent to each other to monitor pump housing acceleration in the horizontal direction, with the second accelerometer used for redundancy. One non-contacting probe was placed on the motor housing to monitor shaft displacement. A schematic showing the location of the sensors used during testing is provided as Attachment 1.

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PDR ADOCK 05000416  
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JOP13AECM85020801 - 1 Member Middle South Utilities System

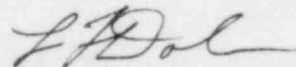
1047  
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Analysis of the data from the pressure sensor was used to determine the power spectra density function (PSD) of the FIV load. The results of the test data verified that the FIV load has a "pink noise" characteristic (i.e. - the intensity of the PSD function is inversely proportional to frequency). Analysis of the data provided by the accelerometer and non-contacting probe was used to determine the dynamic characteristics of the housing and shaft. This analysis shows that the modal participation becomes small as frequency increases. In addition, there are small pump housing accelerations caused by normal rotating equipment imbalances. This response is less than 0.02 g's and occurs at the pump's operational speed of 30 Hz. The FIV response is a factor of 10 less than the response caused by the machinery imbalance.

Based on the HPCS in-situ test results, MP&L concludes that the FIV will not impair operability of the HPCS Service Water pump. Copies of the cover sheet for the test specification, test plan and procedure, and test report are provided as Attachment 2.

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

Yours truly,



L. F. Dale  
Director

KED/MLC/JGC:vog  
Attachment

cc: Mr. J. B. Richard (w/a)  
Mr. R. B. McGehee (w/a)  
Mr. N. S. Reynolds (w/a)  
Mr. G. B. Taylor (w/o)

Mr. James M. Taylor, Director (w/a)  
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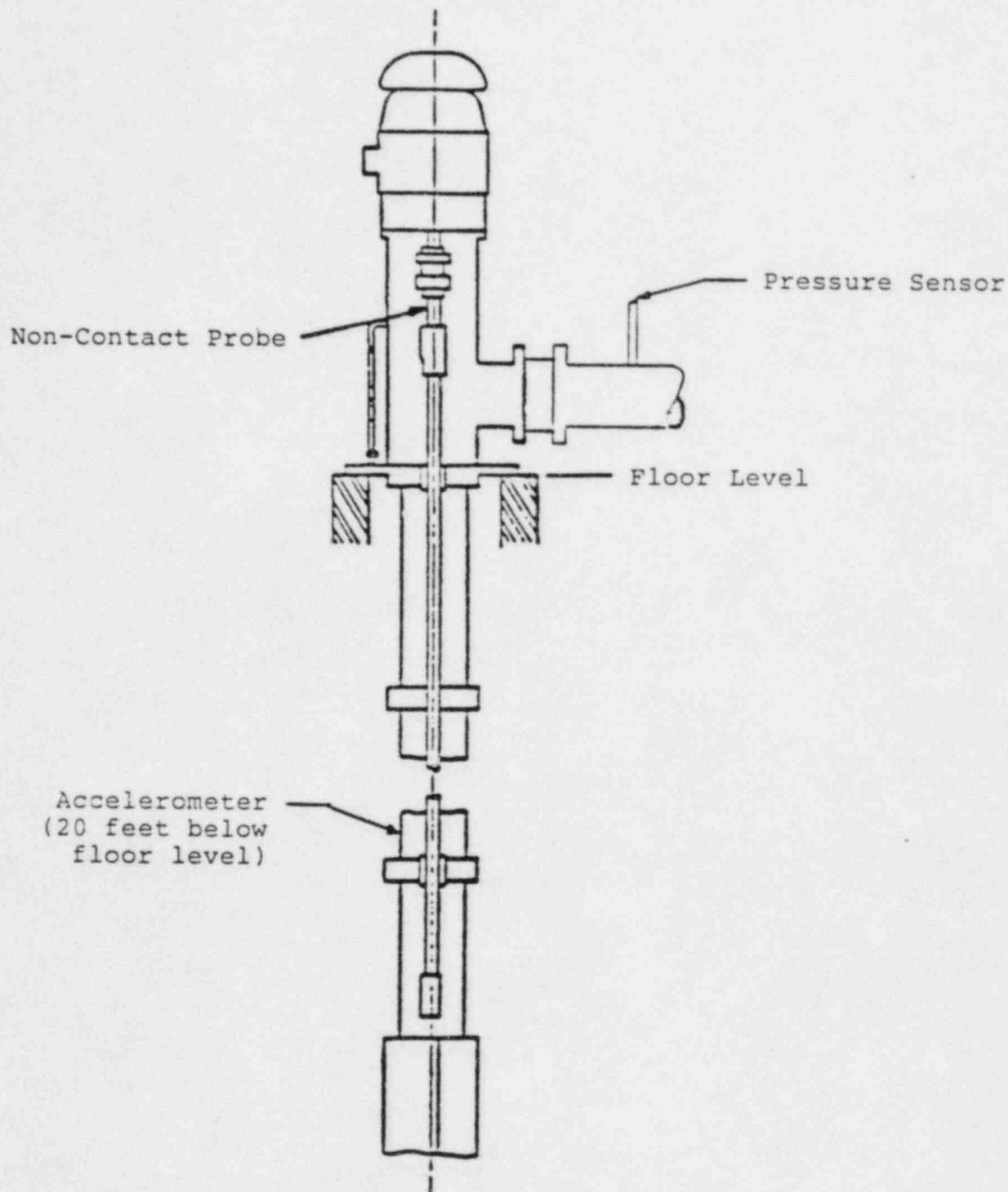


FIGURE 2.1-1

Location of Test Sensors

ATTACHMENT 2  
Page 1 of 3

TEST SPECIFICATION  
IN-SITU OPERATIONAL TESTING  
AND ANALYSIS OF THE HPCS  
SERVICE WATER PUMP  
FOR  
MISSISSIPPI POWER AND LIGHT COMPANY  
GRAND GULF NUCLEAR STATION

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Date:

12/9/82

ATTACHMENT 2  
Page 2 of 3

NUTECH TESTING SERVICES  
TEST PLAN, TEST PROCEDURE AND  
QA REQUIREMENTS  
IN SITU OPERATIONAL TESTING OF  
THE GRAND GULF HPCS SERVICE WATER PUMP  
MISSISSIPPI POWER AND LIGHT

Prepared For  
Mississippi Power and Light

Prepared By  
NUTECH Testing Services  
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NUTECH  
CONTROLLED  
COPY NO. 4  
MPL-06-221  
Revision 0  
September 1983  
File 32.1206.0216

ATTACHMENT 2  
Page 3 of 3

IN-SITU OPERATIONAL TESTING  
OF  
HPCS SERVICE WATER PUMP  
FOR  
GRAND GULF NUCLEAR POWER STATION

Prepared for:  
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