



MISSISSIPPI POWER & LIGHT COMPANY

Helping Build Mississippi

P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

June 25, 1982

NUCLEAR PRODUCTION 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  
Unit 1 and 2  
Docket Nos. 50-416 and 50-417  
File 0260/L-860.0/0756  
Outstanding Information Requests  
for Hydrogen Control  
AECM-82/294

Enclosed are the Mississippi Power & Light Company (MP&L) responses to four NRC review questions received via telecopy June 23, 1982 from your Mr. Schwencer.

During the past few months MP&L has transmitted to the NRC numerous submittals on the Hydrogen Control Issue. This was performed on an informal question - formal answer basis. It is our understanding that these four concerns must be addressed prior to issuance of the interim approval of the Hydrogen Control Issue and MP&L has put forth significant efforts into the resolution or interim resolution of each of the items listed below.

1. Concern  
An Evaluation of the response of the air-lock to a local detonation.  
  
Response  
This concern has been addressed in AECM-82/292 dated June 25, 1982.
2. Concern  
An Evaluation of Pool dynamic impact loads and pool carry-over due to hydrogen combustion.  
  
Response  
See attachment I to this letter (AECM-82/294 dated June 25, 1982).
3. Concern  
An Expanded evaluation of equipment survivability for pressure, especially for the drywell vacuum breakers and drywell purge compressors. B001  
  
Response  
This concern has been addressed in AECM-82/296 dated June 25, 1982.

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4. Concern  
Identification of the valve to be used in Emergence Procedure 05-S-01-EP-9 for venting and an evaluation of their operability at the expected pressure differentials.

Response

It is MP&L's intention to follow this item closely, as it is an owner's group (BWR) issue, and it pertains to the Generic Emergency Procedure Guidelines prepared for the use of all BWR's. As the NRC has requested, MP&L addressed the issue of venting in AECM-82/276 dated June 15, 1982. The subject of venting the containment has been a topic of discussion in the industry for some time and resolution of this issue is expected in the near future. The companion subject of valve operability will only follow (not lead) the venting resolution and will only be applicable if containment venting, for such purposes as pressure relief, is contained in the resolution.

It is our understanding that this completed the efforts in the Hydrogen Control area and that the SSER and the subsequent ACRS may take place forthwith.

Yours truly,



L. F. Dale

Manager of Nuclear Services

RMS/SHH/JDR:de  
Attachment

cc: Mr. N. L. Stampley (w/a)  
Mr. R. B. McGehee (w/a)  
Mr. T. B. Conner (w/a)  
Mr. G. B. Taylor (w/a)

Mr. Richard C. DeYoung, Director (w/a)  
Office of Inspection & Enforcement  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Mr. J. P. O'Reilly, Regional Administrator (w/a)  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Region II  
101 Marietta St., N.W., Suite 3100  
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## ATTACHMENT I

Pool Dynamic Impact Loads and Pool Carry-Over  
due to Hydrogen Combustion

The evaluation of pool dynamic loads has been performed previously as it applies to Loss of Coolant Accidents (LOCA's). These loads have been evaluated by MP&L and the results show no degradation of Plant Safety. In concert with this, MP&L evaluated its drywell burn base case flame speed of 6 fps and found that the drywell pool swell velocity was of the same magnitude as the LOCA evaluation, indicating that Grand Gulf's initial LOCA evaluation remains valid.

In addition, it is MP&L's position that no global type burn will occur in the drywell, given such an event, but that an inverted flame will occur providing only a modest increase (less than 3 psi) in pressure, which will have no effect on suppression pool dynamics as discussed in AECM-82/25 dated March 2, 1982.

The following should also be considered: 1) that this event, Drywell/Small Break LOCA, is significantly lower in probability of occurrence (about  $5 \times 10^{-8}$ ) than a transient induced Stuck Open Relief Valve (about  $2 \times 10^{-7}$ ) as discussed in the Hydrogen Control Owner Group letter HGN-003 dated April 8, 1982, 2) that the use of a flame speed greater than 6 fps, i.e. 12 fps is quite unrealistic in the regime presented, 3) that utility sponsored testing to date has shown that flame speeds, in hydrogen concentrations around the 9 v/o level are less than anticipated (on the order of 4 fps \*), and 4) planned tests will address the question of burn characteristics in such a regime and that the results will support an "inverted flame" as opposed to a "global burn" in the drywell.

\* Preliminary results of EPRI sponsored tests at Whiteshell

It is MP&L's belief that the planned testing will show burn phenomenon and flame speed which are more closely characterized by continuous inverted flames or the drywell base case than by the 12 fps drywell burn case.

MP&L then believes that the information submitted to date provides an appropriate basis for the interim evaluation. Further evaluation of the 12 fps case for drywell pool swell will be carried out if test results indicate such evaluation is warranted. It is anticipated however, that other programs on burn phenomena will demonstrate that this case is excessively conservative.