



Entergy Operations, Inc.  
P.O. Box 756  
Port Gibson, MS 39150  
Tel 601 437 2800

C. R. Hutchinson  
Vice President  
Operations  
Grand Gulf Nuclear Station

July 30, 1993

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

Attention: Document Control Desk

Subject: Grand Gulf Nuclear Station  
Unit 1  
Docket No. 50-416  
License No. NPF-29  
Grand Gulf Nuclear Station (GGNS)  
Response to NRC Bulletin 93-03 and  
Generic Letter 92-04

GNRO-93/00093

Gentlemen:

On April 27, 1993, the NRC requested additional information concerning the GGNS response to Generic Letter 92-04, which dealt with the reliability of BWR vessel level instrumentation under rapid depressurization conditions. The NRC subsequently issued NRC Bulletin 93-03 on May 28, 1993, which requested additional compensatory measures for normal cooldown conditions, and prompt hardware modifications. The following information responds to both requests.

GGNS implemented the following short term compensatory measures to address the Requested Actions 1.(a)(1), (2), and (3) of NRC Bulletin 93-03:

Licensed Operators were issued a Standing Order (Night Order) which discussed the event at WNP-2 and addressed unusual level indications/evolutions with potential to drain the vessel. Information Notices 92-54 and 93-27 were attached. The importance of enhanced level monitoring during reduced pressure conditions was stressed, as well as the actions to be taken if reference leg degassing is suspected.

Alarm Response Instruction for the Reactor Water Level Signal Failure High/Low annunciator was revised to alert operators that the alarming of this annunciator could be a result of degassing of reactor water level reference legs. This annunciator alarms when a preset differential (approximately 7.5 inches) is exceeded between any two of

G9307091 - 1

9308060375 930730  
PDR ADDCK 05000416  
G PDR

JEL 1/1

three reactor water level narrow range channels (A, B, or C). Actions to be taken if degassing is suspected were provided in this instruction.

The GGNS Integrated Operating Instruction (IOI) for Plant Shutdown was revised to alert operators of the potential for degassing during normal reactor depressurizations. During reactor depressurization, operators were instructed to frequently monitor reactor water level for anomalies and to minimize activities and valve manipulations with potential to drain the vessel. Appropriate actions to be taken in the event of a level anomaly are referenced in this procedure.

The System Operating Instruction (SOI) for the Residual Heat Removal System (RHR) was revised to include information that during a reactor depressurization, the potential exists for RPV level reference legs to experience a degassing event that could cause RPV level indication to read higher than actual. This caution statement was repeated several times in the procedure. Additionally, the SOI requires that if evidence of degassing is experienced after shutdown cooling is placed in service, then no further actions to cooldown/depressurize will be taken until the level anomaly is investigated.

GGNS implemented Short Term Compensatory Action 1.(b) by preparing a lesson plan and providing augmented training to licensed operators by July 30, 1993, on loss of inventory scenarios during reduced pressure conditions. In addition, operators were provided training on industry operating experiences concerning reactor water level instrumentation (including the WNP-2 event) and loss of inventory events (RPV draindown via shutdown cooling flowpaths).

The short term actions described above will remain in effect until such time as GGNS has implemented the hardware modification discussed below.

In addition to the above actions, GGNS already has in place interlocks to minimize the possibility of draining the RPV to the suppression pool due to improper valve handswitch manipulations. The RHR suppression pool suction valve (F004A/B) is interlocked with its respective shutdown cooling valve (F006A/B) such that in order to open either valve, the other must be full closed. In addition, the shutdown cooling valve cannot be opened unless the test return valve (F0024A/B)

is also full closed. The test return valve is interlocked such that it will autoclose and be interlocked closed if the respective suppression pool suction valve is closed (this prevents opening if shutdown cooling is in operation). The Reactor Water Level Signal Failure High/Low annunciator is also a feature available that is not common to all plants. This compares narrow range reactor water level channels A, B, and C for a deviation of greater than approximately seven inches between any of the channels. The annunciator will alarm when this setpoint is exceeded, thus providing the operators an additional method of monitoring for reference leg degassing such as occurred at WNP-2.

Based upon equipment lead times and time required to complete the design process and test verification, GGNS expects to be prepared to implement the following hardware modification prior to restart from the next refueling outage which is scheduled to commence October 8, 1993:

- . A continuous backfill system, using the control rod drive pump discharge as the source of purge water (commonly known as the "Millstone modification"). This system will be implemented on the four reactor water level reference legs which provide both indications and automatic actions. This modification will prevent the buildup of unacceptable levels of noncondensable gases in the reference legs, thus providing assurance of long term reliability of the reactor water level instrumentation. Notwithstanding Millstone's modification (which was on an indication-only system), it should be noted that potential effects such as pressure perturbations on automatic actions are not yet fully understood. There is some likelihood that post-modification testing will reveal that the continuous backfill system is unacceptable for reliable operation. Should this occur, GGNS commits to provide reasonable alternatives until the design problems are resolved.
  
- . GGNS currently intends (but does not commit) to install a modification prior to restart following the next refueling outage that will provide indication of level in the core zone range. This modification employs the current fuel zone monitoring instrumentation, but instead of using a condensing pot as a reference leg source it uses the variable leg of the narrow range transmitters. This ensures that the variable leg of this instrument does not become saturated with noncondensibles, thus providing an accurate indication of reactor level within

July 30, 1993  
GNRO-93/00093  
Page 4 of 6

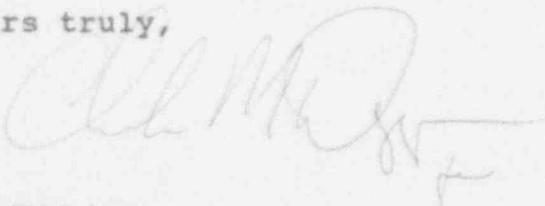
the range of the transmitter. This modification addresses only the degassing concerns associated with rapid depressurization scenarios, not low pressure controlled shutdowns. However, when used in conjunction with backfilling reference legs (discussed below) prior to entering shutdown cooling, both areas of concern (rapid depressurization and slow controlled depressurization) are addressed. GGNS expects to rely on this core zone monitor and backfill procedure in order to support level instrumentation operability in the event the continuous backfill system becomes inoperable.

In the interim period until the continuous backfill modification is installed, GGNS plans to manually backfill reference legs which feed shutdown cooling isolation instrumentation in order to purge them of noncondensable gases. This interim backfill, using a proceduralized methodology, will be performed shortly before entering shutdown cooling in order to ensure that reference leg degassing cannot occur during the subsequent depressurization. Current operator guidance is adequate to address rapid depressurization events in this interim period.

Within 30 days of completion of the continuous backfill system GGNS will submit a report confirming completion and describing the modification.

Please feel free to contact Ricky Patterson at (601)437-6466 for additional information.

Yours truly,



CRH/RLP/ams  
cc: (See next page)

July 30, 1993  
GNRO-93/00093  
Page 5 of 6

cc: Mr. R. H. Bernhard (w/o)  
Mr. H. W. Keiser (w/o)  
Mr. R. B. McGehee (w/o)  
Mr. N. S. Reynolds (w/o)  
Mr. H. L. Thomas (w/o)

Mr. Stewart D. Ebnetter (w/o)  
Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region II  
101 Marietta St., N.W., Suite 2900  
Atlanta, Georgia 30323

Mr. P. W. O'Connor, Project Manager (w/2)  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Mail Stop 13H3  
Washington, D.C. 20555

BEFORE THE  
UNITED STATES NUCLEAR REGULATORY COMMISSION

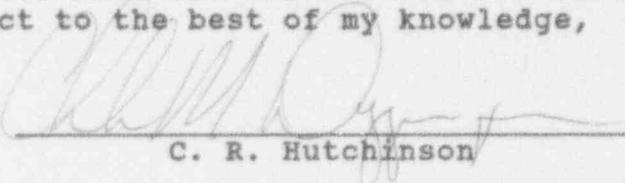
LICENSE NO. NPF-29

DOCKET NO. 50-416

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

AFFIRMATION

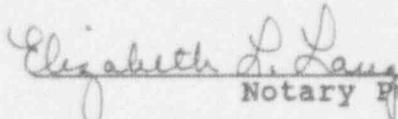
I, C. R. Hutchinson, being duly sworn, state that I am Vice President, Operations GGNS of Entergy Operations, Inc.; that on behalf of Entergy Operations, Inc., System Energy Resources, Inc., and South Mississippi Electric Power Association I am authorized by Entergy Operations, Inc. to sign and file with the Nuclear Regulatory Commission, this application for amendment of the Operating License of the Grand Gulf Nuclear Station; that I signed this application 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.

  
C. R. Hutchinson

STATE OF MISSISSIPPI  
COUNTY OF CLAIBORNE

SUBSCRIBED AND SWORN TO before me, a Notary Public, in and for the County and State above named, this 30<sup>th</sup> day of July, 1993.

(SEAL)

  
Notary Public

My commission expires:

December 28, 1995