

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

LICENSE NO. NPF-29

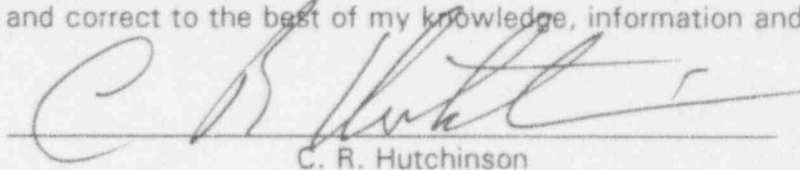
DOCKET NO. 50-416

IN THE MATTER OF

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

AFFIRMATION

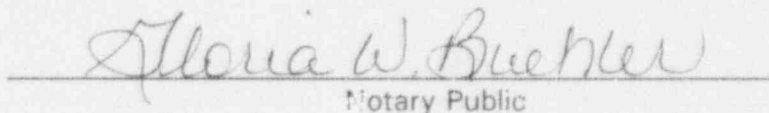
I, C. R. Hutchinson, being duly sworn, state that I am Vice President, Operations GGNS of Entergy Operations, Inc.; that on behalf of Entergy Operations, Inc., System Energy Resources, Inc., and South Mississippi Electric Power Association I am authorized by Entergy Operations, Inc. to sign and file 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 23rd day of September, 1993.

(SEAL)


Notary Public

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

9309290307 930923
PDR ADDCK 05000416
P PDR

I. Discussion of the Requirements for Which a Technical Specification Change Is Requested

Technical Specification 3.4.1.2, "Jet Pumps", specifies the operability requirements for the jet pumps. Specifically, Surveillance Requirement 4.4.1.2.2 allows:

"The provisions of Specification 4.0.4 are not applicable provided the diffuser-to-lower plenum differential pressures of the individual jet pumps are determined to be within 50% of the loop average within 72 hours after entering OPERATIONAL CONDITION 2 and at least once per 24 hours thereafter."

As discussed below, the surveillance performed at these low flow and power conditions do not provide meaningful information concerning the integrity of the jet pumps. Regardless of the usefulness of this surveillance, TS 4.0.1 would require that the jet pumps be declared inoperable if this surveillance were failed and the following action be taken in accordance with TS 3.4.1.2:

"With one or more jet pumps inoperable, be in at least HOT SHUTDOWN within 12 hours."

We therefore propose that Surveillance Requirement 4.4.1.2.2 be replaced by a clarification of Surveillance Requirement 4.4.1.2.1. This clarification identifies that the requirements of Specification 4.0.4 are not applicable to this surveillance if, with reactor power greater 25% rated thermal power (RTP), the surveillance is performed within:

1. 4 hours after placing an associated recirculation loop into operation or
2. 24 hours after reaching > 25% RTP.

The proposed change is fundamentally an administrative change in that the change has been included in NUREG 1434, Improved Technical Specifications and in the operating license of two BWR plants of similar design that were licensed after GGNS. We would have submitted this change as part of the GGNS Improved Technical Specifications due to be submitted in early October, 1993 but unforeseen plant conditions now dictate that we pursue the change at this time.

II. Circumstances Surrounding the Need for the Previous Enforcement Discretion

The 24 Grand Gulf jet pump assemblies are located in two semi-circular groups of 12 assemblies each in the downcomer annulus between the core shroud and

the reactor vessel wall. High pressure water from the recirculation pump is supplied to each pair of jet pumps through a riser pipe welded to the recirculation inlet nozzle thermal sleeve. Differential pressure instruments for each jet pump are arranged in two loops (designated "A" and "B") containing 12 jet pump instruments each.

On September 13, 1993, the reactor tripped due to spurious actuation of the High Pressure Core Spray system. Following various outage activities we commenced startup and entered Mode 2 at 7:28 a.m. on September 17. Due to difficulties in maintaining condenser vacuum and extended troubleshooting to identify and resolve the source of this problem, the plant remained at approximately 5% power for several days.

On September 20, 1993 GGNS requested and was granted a Notice of Enforcement Discretion due to the inability to successfully meet the acceptance criteria of TS Surveillance 4.4.1.2.2. As discussed in the request for the Enforcement Discretion, the readings associated with the "A" loop of the jet pump d/p instrumentation had been erratic with a few jet pumps showing higher than acceptable indication and a few showing lower than normal indication. While most jet pump indications were within 50% of the average value for loop "A", the loop average itself was lower than expected. Additionally, individual jet pump d/p indications changed over time.

III. Justification for Change

The jet pumps have no active safety function. However, a failed jet pump, in the case of a design basis accident, would increase the blowdown area and reduce the capability of reflooding the core. LCO 3.4.1.2, therefore, requires that with an inoperable jet pump, the reactor be shutdown. The requested change does not affect this requirement, but delays the performance of a surveillance requirement which does not provide meaningful information concerning jet pump OPERABILITY below 25% rated thermal power (RTP). The requested change also adds needed allowances to Surveillance Requirement 4.4.1.2.1 so the reactor can enter a condition of operation such that the surveillance can be performed.

The requested change delays the performance of jet pump testing associated with Surveillance Requirement 4.4.1.2.2 and deletes an associated startup testing footnote. The current Surveillance Requirement 4.4.1.2.2 provides for a delay in meeting Surveillance Requirement 4.4.1.2.1 and requires that the diffuser-to-lower plenum differential pressures of the individual jet pumps be determined to be within 50% of the loop average within 72 hours after entering OPERATION CONDITION 2 and once per 24 hours thereafter. Surveillance Requirement 4.4.1.2.2 provides this delay by providing an exception to the

requirements of Specification 4.0.4 if this surveillance is performed.

We therefore propose that Surveillance Requirement 4.4.1.2.2 be replaced by a clarification of Surveillance Requirement 4.4.1.2.1. This clarification identifies that the requirements of Specification 4.0.4 are not applicable to this surveillance if, with reactor power greater 25% rated thermal power (RTP), the surveillance is performed within:

1. 4 hours after placing an associated recirculation loop into operation or
2. 24 hours after reaching > 25% RTP.

This clarification is needed and the current surveillance requirement is unnecessary since the current TS Surveillance Requirement did not provide meaningful information. The current surveillance did not provide meaningful information since below 25% RTP the low jet pump flow results in indications which preclude the collection of repeatable and meaningful data. This situation was recognized and addressed in NUREG 1434 by the deletion of this surveillance and the addition of the proposed clarification to NUREG 1434 SR 3.4.3.1. The flexibility to proceed to >25% RTP and then commence the surveillance of the jet pumps every 24 hours is consistent with the approved Technical Specifications for both Perry Nuclear Power Plant and River Bend Station.

The historical basis for Surveillance Requirement 4.4.1.2.2 is General Electric Nuclear Services Information Letter (SIL) 330 which describes the failure of jet pump hold-down beams at two operating BWR-3 plants due to inter-granular stress corrosion cracking. At both plants, significant recirculation system performance degradation occurred over a period of time prior to beam failure. The SIL recommended periodic monitoring of jet pump performance to provide early indication of jet pump beam failure.

Although Grand Gulf agreed to adopt Surveillance Requirement 4.4.1.2.2 in response to this issue prior to receipt of the full power operating license (see, for instance, Supplement 6 to the Grand Gulf SER (NUREG-0831), Section 3.4.1.2), our plant-specific design was not taken into account. As we noted in a presentation to the NRC on June 8, 1993 concerning regulatory burden reduction, Grand Gulf has reduced the jet pump hold down beam pre-loading from approximately 30 kips to 25 kips. Following evaluation by General Electric of the relevance of SIL 330 to Grand Gulf, GE concluded that reduction of the pre-load should be sufficient to avoid the jet pump hold down beam cracking experienced at the BWR-3 plants. Nonetheless, we have continued to perform augmented inspection UT examinations of all 24 jet pump beams during each refueling outage. There have been no indications of beam cracking identified to date. This finding coupled with the low beam stresses at power levels

comparable to 25% RTP provide adequate assurance of jet pump beam integrity.

Surveillance Requirement 4.4.1.2.2 should be deleted and the proposed applicability clarifications added since as discussed above the current surveillance requirements are unnecessary and did not provide meaningful information. The requirements of Surveillance Requirement 4.4.1.2.1 with the added clarifications provide adequate assurance that jet pump integrity is maintained.

This change does not affect the design or operation of the jet pumps or change any parameters that might increase the probability of failure.

VI. No Significant Hazards Considerations

1. The Commission has provided standards for determining whether a no significant hazards consideration exists. A change to the operating license involves no significant hazards consideration if operation of the facility in accordance with the change would not:
(1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.
2. Entergy Operations has evaluated the no significant hazards considerations associated with this change as follows:
 - a. No significant increase in the probability or consequences of an accident previously evaluated results from this change.
 - 1) The jet pumps are not considered as initiators of any previously evaluated accidents. However, a failed jet pump, in the case of a design basis accident, could increase the blowdown area and reduce the capability of reflooding the core. The TS, therefore, require that with an inoperable jet pump, the reactor be shutdown. However, this change does not affect the design or operation of the jet pumps or change any parameters that might increase the probability of failure. Thus, the revised surveillance cannot increase the probability of an accident previously evaluated.
 - 2) The proposed change will delay the requirement to perform the jet pump differential pressure measurement

until reactor power is above 25 %. The current requirement is replaced by a note which provides time to perform the required surveillances when an associated recirculation loop is placed in operation or when the reactor exceeds 25 % power. Below 25 % power, low jet pump flow results in indication which precludes the collection of repeatable and meaningful data. The flexibility has previously been approved on two plants of similar design as well as in NUREG 1434, Improved Technical Specifications, Rev. 0. Industry data collected on older vintage BWRs has indicated that failure of the jet pump hold down beams can affect the integrity of the jet pumps. Early stages of degradation can be detected by measuring the differential pressure across the individual jet pumps and comparing the measurements to the loop average. GGNS has completed the recommended mitigative actions to reduce stress on the jet pump hold down beams. These improvements in association with the requirement to perform the surveillance at the earliest time that meaningful data can be collected will provide a sufficient level of confidence that the integrity of the jet pumps is and will continue to be maintained. Thus, the consequences of an accident previously evaluated are not affected.

3) Therefore, the probability or consequences of previously analyzed accidents are not significantly increased.

- b. The change would not create the possibility of a new or different kind of accident from any previously analyzed.

The change introduces no new mode of plant operation and it does not involve physical modification of the plant. Therefore, operating the plant with the proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

- c. This change would not involve a significant reduction in a margin of safety.

- 1) The jet pumps have no active safety function. However, a failed jet pump, in the case of a design basis accident, could increase the blowdown area and reduce the capability of reflooding the core. Surveillance Requirement 4.4.1.2.1 provides a sufficient level of

assurance (i.e., a margin of safety) that this passive safety function is maintained. The safety margin afforded by Surveillance Requirement 4.4.1.2.2 is minor to negligible.

- 2) The Surveillance Requirement 4.4.1.2.2 was imposed on Grand Gulf in response to a jet pump hold down beam cracking concern identified at older BWR-3 plants. Due to reduction of pre-load stresses in the Grand Gulf hold down beams, jet pump lifetime is expected to significantly exceed that exhibited at the BWR-3 plants. The reduced pre-load in conjunction with a complete lack of cracking indication during prior refueling outage UT examinations of every jet pump suggests that the benefit of Surveillance Requirement 4.4.1.2.2 (and the equivalent compensatory measures) is relatively low. The mitigative actions previously performed to reduce stress on the jet pump hold-down beams in conjunction with the requirement to perform the surveillance at the earliest time that meaningful data can be collected provides a high level of assurance that the jet pump integrity will be maintained.
- 3) Therefore, operating the plant with the proposed change will not involve a significant reduction in a margin of safety.

4. Based on the above evaluation, operation in accordance with the proposed change involves no significant hazards considerations.

VII. Basis That The Request Does Not Involve Irreversible Environmental Consequences

Entergy Operations has evaluated the propose change against the criteria for categorical exclusion specified in 10CFR51.22. We have concluded that the proposed change:

- (i) involves no significant hazards consideration,
- (ii) does not significantly change the types or increase the amounts of any effluents that may be released off-site, and
- (iii) does not significantly increase individual or cumulative occupational radiation exposure.

Therefore, we have concluded that the proposed change does not

involve irreversible environmental consequences and meets the eligibility criteria for categorical exclusion set forth in 10CFR51.22(c)(9).