Entergy Operations

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W. T. Cottle
Vice President
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August 10, 1990

U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

Attention: Document Control Desk

Gentlemen:

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-29
Surveillance Test of Unit Batteries
for Specific Gravity
Proposed Amendment to the Operating
License (PCOL-90/09)
AECM-90/0145

Entergy Operations, Inc. - Grand Gulf Nuclear Station (GGNS) is submitting by this letter a proposed amendment to the GGNS Operating License.

The proposed amendment affects GGNS Technical Specification (TS) 3/4.8.2, "D.C. Sources" and proposes the addition of a note to TS Table 4.8.2.1-1, "Battery Surveillance Requirements". The note will clarify the current TS regarding the use of an alternate means of verifying unit battery operability following the service and performance discharge test. The proposed note is consistent with the recommendations contained in IEEE 450-1980, "IEEE Recommended Practices for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations" and is utilized in the BWR-6 Standard TS.

In accordance with the provisions of 10CFR50.4, the signed original of the requested amendment is enclosed and the appropriate copies will be distributed. Attachment 2 provides the technical justification and discussion to support the requested amendment.

This amendment has been reviewed and accepted by the Plant Safety Review Committee and the Safety Review Committee.

Based on the guidelines presented in 10CFR50.92, Entergy Operations - GGNS has concluded that this proposed amendment involves no significant hazards considerations.

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Entergy Operations - GGNS requests a response to this letter by October 18, 1990 to allow utilization during the upcoming refueling outage.

Yours truly,

WTC:mtc
Attachments:
1. Affirmation per 10CFR50.30
2. GGNS PCOL-90/09

cc: Mr. D. C. Hintz (w/a)
Mr. T. H. Cloninger (w/a)
Mr. R. B. McGehee (w/a)
Mr. N. S. Reynolds (w/a)
Mr. H. L. Thomas (w/o)
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Dr. Alton B. Cobb (w/a)
State Health Officer
State Board of Health
P.O. Box 1700
Jackson, Mississippi 39205

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, W. T. Cottle, being duly sworn, state that I am Vice President, Operations - Grand Gulf Nuclear Station 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 - Grand Gulf Nuclear Station 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.

W. T. Cottle

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 10th day of August, 1990.

(SEAL)

Elizabeth L. Lang
Notary Public

My commission expires:

December 29, 1991

A9008031/SNLICFLR - 4

A. SUBJECT

1. NL-90/08 Surveillance Test of Specific Gravity for ESF Batteries, Table 4.8.2.1-1.
2. Affected Technical Specification:

   a) Table 4.8.2.1-1, Battery Surveillance Requirements - Page 3/4 8-13
   b) Bases 3/4.8.1, 3/4.8.2 and 3/4.8.3 - Page B3/48-2

B. DISCUSSION

1. GGNS is requesting a clarification to Technical Specification (TS) Table 4.8.2.1-1 which adds a note to allow the battery charging current to be used in lieu of specific gravity to verify OPERABILITY of the ESF batteries following the service and performance discharge test.

2. A statement is added to the Bases for TS 3/4.8.2 to clarify that the battery charging current may be used in lieu of the specific gravity measurement following the service or performance discharge test.

C. JUSTIFICATION

1. The ESF batteries are presently subjected to a service discharge test once every 18 months and a performance discharge test once every 60 months to comply with TS Surveillance Requirement (SR) 4.8.2.1.d & e. SR 4.8.2.1.b specifies that the quarterly test to demonstrate the OPERABILITY of the batteries be performed within 7 days of completion of the service and performance discharge tests. This SR requires that parameters in Table 4.8.2.1-1 meet the Category B limits.

2. Although the batteries are fully recharged after a discharge test and capable of performing the intended function, a rigorous interpretation of the current TS would delay declaring the batteries OPERABLE until the specific gravity limits of Table 4.8.2.1-1 are satisfied. However, because of specific gravity gradients which are produced during the recharging process, delays of 3 to 7 days may occur while waiting for the specific gravity to stabilize. The Bases for TS 3.8.2.1 recognizes that a stabilized charger current is an acceptable alternative to specific gravity measurement for determining the state of charge of the designated pilot cell. As a clarification, this allowance is being added as a footnote to TS Table 4.8.2.1-1 to allow the float charge to be used as alternate means of verifying operability following a discharge test. The footnote will be made applicable to both the Category A and the Category B parameters.

3. The specific gravity of the tested battery drops during a discharge to a value approaching 1.00. On the subsequent recharge, it is normal for the measured specific gravity of the cells to lag behind the true specific gravity. This is caused by the generation of high specific gravity sulfuric acid by the plates during the recharge. This acid sinks toward the bottom of the cell resulting in a specific gravity gradient and produces an incorrect low reading at the top of the cell. The high specific gravity acid gradually diffuses through the solution. Depending on the depth of discharge and the recharge voltage, diffusion of the acid through out the electrolyte may take several weeks. Due to the time required for the diffusion process, the specific gravity parameter does not accurately reflect the battery's state of charge after recharging. Therefore, the specific gravity parameter is not an accurate indication of the state of charge of the battery during this time.

4. The battery charging current is a more accurate indicator of the battery's state of charge following a service or performance discharge test. As the cells approach full charge, the battery voltage rises to approach the charger output voltage, and the charging current decreases to a stabilized value. When the charging current has stabilized at the charging voltage, the battery is charged, even though specific gravities have not stabilized. For the Division I, II and III batteries, a float current of 2 amps is indicative of full charge. Using the battery charging current indicator resolves the problems associated with delaying battery return to service after scheduled discharge tests. This alternate method of verifying OPERABILITY is discussed in the Bases for TS 3.8.2.1 for the Category A Limits.

5. A discussion of this phenomenon can be found in IEEE 450-1980, "IEEE Recommended Practices for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations". IEEE 450-1980, along with Regulatory Guide 1.129, is referenced in the GGNS TS Bases (page B 3/4 8-2) as the basis for demonstrating OPERABILITY of the unit batteries. The need to use an alternate means of verifying the state of the battery's charge is recognized in the BWR-6 Standard TS and other BWR-6 plant's TS.

D. 10 SIGNIFICANT HAZARDS CONSIDERATIONS

GNS is proposing with this amendment request a revision to TS Table 4.8.2.1-1 which would allow the battery charger current to be used in lieu of the specific gravity of the electrolyte for determining if the battery is OPERABLE following the service and performance discharge tests.

The Commission has provided standards for determining whether a no significant hazards consideration exists as stated in 10CFR50.92(c). A proposed amendment to an operating license involves no significant hazards if operation of the facility in accordance with the proposed amendment 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.

GGNS has evaluated the no significant hazards considerations in its request for a license amendment. In accordance with 10CFR50.91(a), GGNS is providing the analysis of the proposed amendment against the three standards in 10CFR50.92:

1. No significant increase in the probability or consequences of an accident previously evaluated results from this change.

   The unit batteries provide a support function to other systems and components required to mitigate an accident. Strict compliance with the current surveillance requirement could result in extended unavailability of the unit batteries while the specific gravity of the electrolyte stabilizes. The proposed alternate surveillance is considered by current industry standards to be a superior indicator of battery charge following a discharge test and will allow an earlier return to service of the tested battery. The proposed surveillance is consistent with the BWR-6 Standard TS and other licensed BWR-6 plant's TS and maintains conservative restrictions on battery OPERABILITY.

   Therefore, no significant increase in the probability or consequences of an accident previously evaluated results from this change.

2. This change would not create the possibility of a new or different kind of accident from any previously analyzed.

   The proposed change to the surveillance requirement employs a more reliable method of demonstrating battery OPERABILITY. No changes to the batteries or the supported systems and components are proposed. The proposed change will not result in changes to the way the affected components and systems are operated.

   Therefore, the possibility of a new or different accident from any previously analyzed is not created.

3. This change would not involve a significant reduction in the margin of safety.

   The proposed change does not decrease the unavailability of the unit batteries and provides a reliable method of verifying the OPERABILITY of the batteries prior to returning the battery to service.

   Therefore, the proposed change will not involve a significant reduction in the margin of safety.

Based on the above evaluation, GGNS has concluded that operation in accordance with the proposed amendment involves no significant hazards considerations.