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January 24, 2000

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

Subject: Grand Gulf Nuclear Station  
Unit 1  
Docket No. 50-416  
License No. NPF-29

Proposed Change to the Operating License, LDC 1999-052  
Revised Minimum Volumes for Diesel Generator Fuel Oil  
Storage Tanks

GNRO-2000/20004

Gentlemen:

During a review of the Diesel Generator System at the Grand Gulf Nuclear Station (GGNS), Entergy Operations, Inc. determined that the minimum usable fuel oil volume for the Division 1 and 2 Diesel Generator Fuel Oil Storage Tanks was 68,744 gallons. This inventory was predicated on the assumption the Diesel Generators were operating at the Technical Specification surveillance testing capacity for seven days. Similarly, a new calculation of the Division 3 Diesel Generator fuel oil requirements identified a minimum usable volume of 44,616 gallons. Accordingly, a proposed change to the Operating License has been developed to revise these values.

Grand Gulf has implemented Standing Order 99-0007 that provides administrative control of the fuel oil storage tank minimum volume until the proposed Operating License amendment is approved. This Standing Order will ensure that an adequate fuel oil inventory is maintained

Mindful of NRC Administrative Letter 98-10 GGNS has prepared this proposed licensed change in accordance with the provisions of 10CFR50.4 and the signed original of the requested amendment is enclosed. Attachment 1 is the oath and affirmation required by 10CFR50.30. Attachment 2 provides a description of the proposed changes and associated justification including a basis for No Significant Hazards Consideration. Attachment 3 is a copy of the marked-up GGNS Operating License. Following NRC approval of this request, EOI will revise the GGNS Technical Specification Bases, in accordance with the Technical Specification Control Program. Attachment 4 is a mark-up of the Bases changes and is provided for information only.

A001

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 has concluded that this proposed amendment involve no significant hazards considerations. If you have any questions or require additional information, please contact Dana E. Smith 601-437-6434.

Yours truly,



/DES

attachments:

1. Affirmation per 10CFR50.30
2. Justification for Technical Specification change and Basis for No Significant Hazards Consideration
3. Mark-up of Affected Technical Specifications
4. Mark-up of Affected Technical Specification Bases

cc:

(See Next Page)

cc: Ms. J. L. Dixon-Herrity, GGNS Senior Resident (w/a)  
Mr. D. E. Levanway (Wise Carter)  
Mr. L. J. Smith (Wise Carter) (w/a)  
Mr. N. S. Reynolds (w/a)  
Mr. H. L. Thomas (w/o)

Mr. E. W. Merschoff (w/a)  
Regional Administrator  
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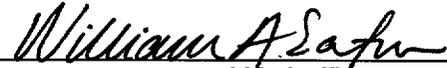
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Dr. E. F. Thompson (w/a)  
State Health Officer  
State Board of Health  
P.O. Box 1700  
Jackson, Mississippi 39205

BEFORE THE  
UNITED STATES NUCLEAR REGULATORY COMMISSION  
LICENSE NO. NPF-29  
DOCKET NO. 50-416  
IN THE MATTER OF  
ENERGY MISSISSIPPI, INC. and  
SYSTEM ENERGY RESOURCES, INC. and  
SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION and  
ENERGY OPERATIONS, INC.

AFFIRMATION

I, W. A. Eaton, 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; 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.

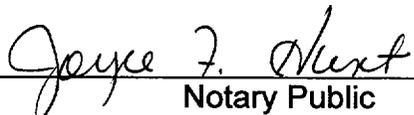
  
W. A. Eaton

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 24 day of January, 2000.



(SEAL)  
MISSISSIPPI STATEWIDE NOTARY PUBLIC  
MY COMMISSION EXPIRES JAN. 3, 2003  
BONDED THRU STEGALL NOTARY SERVICE

  
Notary Public

My commission expires: \_\_\_\_\_

**ATTACHMENT 2**

**Justification For Technical Specification Change  
and  
Basis For No Significant Hazards Consideration**

## AFFECTED TECHNICAL SPECIFICATIONS

The following Technical Specifications and their associated bases are affected by the proposed change:

LCO 3.8.3 Condition A.1, Page 3.8-22

LCO 3.8.3 Condition A.2, Page 3.8-22

SR 3.8.3.1.a, Page 3.8-24

SR 3.8.3.1.b, Page 3.8-24

Since Technical Specification Bases are controlled under the 10CFR50.59 program, the mark-up of the Bases sections is provided for information only.

### A. DESCRIPTION OF CHANGES

Entergy Operations, Inc. is requesting revisions to the Technical Specifications that specify the minimum fuel oil inventories to be maintained in the Division 1, 2, and 3 Diesel Generator Fuel Oil Storage Tanks. Technical Specification 3.8.3 currently requires a minimum usable fuel oil volume of 62,000 gallons for Division 1 and 2 Diesel Generators and a minimum usable fuel oil volume of 41,200 gallons for Division 3 Diesel Generator. The proposed values are 68,744 and 44,616 gallons, respectively.

### B. JUSTIFICATION

In accordance with Technical Specification 3.8.3 and UFSAR commitments to Regulatory Guide (RG) 1.137 and ANSI N195-1976, the Diesel Generator Fuel Oil Storage Tanks are required to contain sufficient fuel oil to operate each diesel generator for a duration of seven days while supplying post-LOCA load demands. Previous calculations to determine the requisite volume of fuel oil indicated that the minimum usable volume of 61,914 gallons was needed for each Division 1 and 2 Diesel Generators to provide the seven day supply. Similar analyses for Division 3 Diesel Generator indicated that the minimum usable volume was 41,158 gallons.

Recent reanalysis of these values, using the methodologies of RG 1.137 and ANSI N195-1976, have been completed using the Technical Specification surveillance testing capacities for Division 1 and 2 Diesel Generators, 5740 KW, rather than the lower post-LOCA load profiles previously assumed. The previous requirements were based upon assumptions that reduced ECCS pump operation would exist after a LOCA. While such assumptions may be considered to be the design basis loading during the first 7 days post-LOCA, a more prudent course of action is to not assume limited operation of the ECCS pumps when calculating the required Diesel Generator fuel oil inventory. Additionally, the Division 3 Diesel Generator fuel oil

storage requirement has been recalculated using the nameplate rating, 3300 KW, rather than the reduced post-LOCA loading previously assumed. These updated analyses indicate the required minimum usable fuel oil volume in the Division 1, 2, and 3 Fuel Oil Storage Tanks is greater than that required by the current Technical Specifications. The old and new calculated values are:

	Division 1 and 2		Division 3	
	OLD	NEW	OLD	NEW
Minimum Usable Volume (gallons)	61,914	68,744	41,158	44,616

As implied in the Bases for SR 3.8.3.1, the fuel oil inventory specified in the Technical Specifications is the usable fuel, not the minimum fuel (i.e., usable plus unusable volumes) in the storage tanks.

**C. BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATION**

Entergy has evaluated this proposed Technical Specification change and has determined that it involves no significant hazards consideration. This determination has been performed in accordance with the criteria set forth in 10CFR50.92. The following evaluation is provided for the three categories of the significant hazards consideration standards:

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

This change would require additional fuel oil to be stored in each of the Division 1, 2, and 3 Diesel Generator Fuel Oil Storage Tanks. The amount of diesel fuel required to be kept in the storage tanks, which has been determined by Calculation MC-Q1P75-90190 Revision 2 and Calculation MC-Q1P81-90188 Revision 2, is well within the maximum capacity of the Diesel Generator Fuel Oil Storage Tanks. As stated in UFSAR Section 9.5.4.3 (Safety Evaluation for the diesel fuel storage subsystem) "...the tank level will be above the "seven-day capacity" required level and will be kept as near the top as practical." Other fuel oil storage subsystem components, such as the transfer pumps, are similarly designed, as a minimum, for the storage tanks being filled to maximum capacity. The Diesel Generator Fuel Oil Storage Tanks continue to meet the original design requirements as described in the UFSAR. The proposed change will provide adequate fuel for diesel generator operation at the Technical Specification surveillance testing capacity for Division 1 and 2 Diesel Generators, 5740 KW, and the nameplate rating for Division 3 Diesel Generator, 3300 KW, rather than the lower post-LOCA load profiles previously assumed. Therefore, increasing the quantity of fuel oil required to be maintained, will not increase the probability of the diesel generators becoming an initiator for any previously evaluated accident. Furthermore, since the proposed change increases the fuel oil inventory it should enhance the ability of the diesel generators to respond to

an accident and as such the change does not increase the consequences of any previously analyzed accident.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

The Diesel Generator Fuel Oil subsystem design and operation will not change except for the incorporation of increased fuel oil inventory requirements. This proposed increase remains within the maximum capacity of the Diesel Generator Fuel Oil Storage Tanks. Existing analyses and evaluations, concerning the fuel oil storage tanks, are not adversely impacted by this increase in the required fuel oil inventory. Other fuel oil storage subsystem components, such as the transfer pumps, are similarly designed, as a minimum, for the storage tanks being filled to maximum capacity. The subsystem continues to meet the original design requirements. The proposed increased fuel oil inventory cannot adversely affect any other equipment. Therefore, since the proposed change only increases the fuel oil inventory requirements and does not result in any change in the response of any equipment to an accident, the proposed change does not create the possibility of a new or different kind of accident from any previously analyzed accident.

3. Does this change involve a significant reduction in a margin of safety?

Existing Technical Specification 3.8.3 bases state the Diesel Generator Fuel Oil Storage Tank minimum level is sufficient to operate the respective Diesel Generator for seven days while supplying maximum post-LOCA demands. The proposed change increases the quantity of fuel oil required to be maintained in each of the Division 1, 2, and 3 Diesel Generator Fuel Oil Storage Tanks. The proposed change will provide adequate fuel for diesel generator operation at the Technical Specification surveillance testing capacity for Division 1 and 2 Diesel Generators, 5740 KW, and the nameplate rating for Division 3 Diesel Generator, 3300 KW, rather than the lower post-LOCA load profiles previously assumed. The amount of diesel fuel required to be kept in the storage tanks, which has been determined by Calculation MC-Q1P75-90190 Revision 2 and Calculation MC-Q1P81-90188 Revision 2, is well within the maximum capacity of the Diesel Generator Fuel Oil Storage Tanks. Therefore, since the proposed change increases the fuel oil inventory it should enhance the ability of the diesel generators to respond to an accident and as such the change does not decrease any margin of safety previously assumed.

**ATTACHMENT 3**

**MARK-UP OF AFFECTED TECHNICAL SPECIFICATIONS**

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each DG.  
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CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more DGs with fuel oil level:</p> <p>1. For DG 11 or 12, &lt;del&gt;62,000&lt;/del&gt; gal and <math>\geq</math> 54,000 gal; and</p> <p>2. For DG 13, &lt;del&gt;41,200&lt;/del&gt; gal and <math>\geq</math> 35,100 gal.</p>	<p>A.1 Restore fuel oil level to within limits.</p> <p style="margin-left: 20px;">68,744 59,173</p> <p style="margin-left: 20px;">44,616 38,280</p>	48 hours
<p>B. One or more DGs with lube oil inventory:</p> <p>1. For DG 11 or 12, &lt; 205 gal and <math>\geq</math> 176 gal; and</p> <p>2. For DG 13, &lt; 101 gal and <math>\geq</math> 87 gal.</p>	<p>B.1 Restore lube oil inventory to within limits.</p>	48 hours

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.3.1 Verify each fuel oil storage tank contains:</p> <p>a. <sup>68,744</sup> <del>≥ 62,000</del> gal of fuel for DGs 11 and 12; and</p> <p>b. <sup>44,616</sup> <del>≥ 41,200</del> gal of fuel for DG 13.</p>	<p>31 days</p>
<p>SR 3.8.3.2 Verify lube oil inventory is:</p> <p>a. ≥ 205 gal for DGs 11 and 12; and</p> <p>b. ≥ 101 gal for DG 13.</p>	<p>31 days</p>
<p>SR 3.8.3.3 Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.</p>	<p>In accordance with the Diesel Fuel Oil Testing Program</p>
<p>SR 3.8.3.4 Verify each required DG air start receiver pressure is:</p> <p>a. ≥ 160 psig for DGs 11 and 12; and</p> <p>b. ≥ 175 psig for DG 13.</p>	<p>31 days</p>
<p>SR 3.8.3.5 Check for and remove accumulated water from each fuel oil storage tank.</p>	<p>92 days</p>

(continued)

ATTACHMENT 4

MARK-UP OF AFFECTED TECHNICAL SPECIFICATION BASES

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

BASES

BACKGROUND

Each diesel generator (DG) is provided with a storage tank having a fuel oil capacity sufficient to operate that DG for a period of 7 days while the DG is supplying maximum post loss of coolant accident load demand (Ref. 1). The maximum load demand is calculated using the assumption that at least two DGs are available. This onsite fuel oil capacity is sufficient to operate the DGs for longer than the time to replenish the onsite supply from outside sources.

Fuel oil is transferred from each storage tank to its respective day tank by a transfer pump associated with each storage tank. Redundancy of pumps and piping precludes the failure of one pump, or the rupture of any pipe, valve, or tank to result in the loss of more than one DG. All outside tanks, pumps, and piping are located underground. The fuel oil level in the storage tank is indicated in the control room.

For proper operation of the standby DGs, it is necessary to ensure the proper quality of the fuel oil. Regulatory Guide 1.137 (Ref. 2) addresses the recommended fuel oil practices as supplemented by ANSI N195 (Ref. 3). The fuel oil properties governed by these SRs are the water and sediment content, the kinematic viscosity, specific gravity (or API gravity), and impurity level.

The DG lubrication system is designed to provide sufficient lubrication to permit proper operation of its associated DG under all loading conditions. The system is required to circulate the lube oil to the diesel engine working surfaces and to remove excess heat generated by friction during operation. Each engine oil sump contains an inventory capable of supporting a minimum of 7 days of operation. This supply is sufficient to allow the operator to replenish lube oil from outside sources.

Each DG has an air start system with adequate capacity for five successive start attempts on the DG without recharging the air start receiver(s).

ITS SURVEILLANCE TESTING CAPACITY AS PRESCRIBED BY TECHNICAL SPECIFICATIONS (5740 KW FOR DIVISION 1 AND 2, 3300 KW FOR DIVISION 3). THIS CAPACITY EXCEEDS THE

(continued)

LDC 1999-052  
Revision No. 0

## B 3.8 ELECTRICAL POWER SYSTEMS

### B 3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

#### BASES

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#### BACKGROUND

Each diesel generator (DG) is provided with a storage tank having a fuel oil capacity sufficient to operate that DG for a period of 7 days while the DG is supplying its surveillance testing capacity as prescribed by Technical Specifications (5740 KW for Division 1 and 2, 3300 KW for Division 3). This capacity exceeds the maximum post loss of coolant accident load demand (Ref. 1). The maximum load demand is calculated using the assumption that at least two DGs are available. This onsite fuel oil capacity is sufficient to operate the DGs for longer than the time to replenish the onsite supply from outside sources.

Fuel oil is transferred from each storage tank to its respective day tank by a transfer pump associated with each storage tank. Redundancy of pumps and piping precludes the failure of one pump, or the rupture of any pipe, valve, or tank to result in the loss of more than one DG. All outside tanks, pumps, and piping are located underground. The fuel oil level in the storage tank is indicated in the control room.

For proper operation of the standby DGs, it is necessary to ensure the proper quality of the fuel oil. Regulatory Guide 1.137 (Ref. 2) addresses the recommended fuel oil practices as supplemented by ANSI N195 (Ref. 3). The fuel oil properties governed by these SRs are the water and sediment content, the kinematic viscosity, specific gravity (or API gravity), and impurity level.

The DG lubrication system is designed to provide sufficient lubrication to permit proper operation of its associated DG under all loading conditions. The system is required to circulate the lube oil to the diesel engine working surfaces and to remove excess heat generated by friction during operation. Each engine oil sump contains an inventory capable of supporting a minimum of 7 days of operation. This supply is sufficient to allow the operator to replenish lube oil from outside sources.

Each DG has an air start system with adequate capacity for five successive start attempts on the DG without recharging the air start receiver(s).

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BASES (continued)

APPLICABLE  
SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in UFSAR, Chapter 6 (Ref. 4) and Chapter 15 (Ref. 5), assume Engineered Safety Feature (ESF) systems are OPERABLE. The DGs are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that fuel, reactor coolant system, and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems.

Since diesel fuel oil, lube oil, and starting air subsystems support the operation of the standby AC power sources, they satisfy Criterion 3 of the NRC Policy Statement.

LCO

5740 KW FOR DIVISION 1  
AND 2 AND 3300 KW FOR  
DIVISION 3

Stored diesel fuel oil is required to have sufficient supply for 7 days of full load, i.e., ~~maximum expected post-LOCA load~~, operation. It is also required to meet specific standards for quality. Additionally, sufficient lube oil supply must be available to ensure the capability to operate at full load for 7 days. This requirement, in conjunction with an ability to obtain replacement supplies within 7 days, supports the availability of DGs required to shut down the reactor and to maintain it in a safe condition for an anticipated operational occurrence (AOO) or a postulated DBA with loss of offsite power. DG day tank fuel requirements, as well as transfer capability from the storage tank to the day tank, are addressed in LCO 3.8.1, "AC Sources—Operating," and LCO 3.8.2, "AC Sources—Shutdown."

The starting air system is required to have a sufficient capacity for multiple DG start attempts without recharging the air start receivers.

APPLICABILITY

The AC sources, LCO 3.8.1 and LCO 3.8.2, are required to ensure the availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an AOO or a postulated DBA. Since stored diesel fuel oil, lube oil, and starting air subsystem support LCO 3.8.1 and LCO 3.8.2, stored diesel fuel oil, lube oil, and starting air are required to be within limits when the associated DG is required to be OPERABLE.

(continued)

BASES

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ACTIONS  
(continued)

E.1

With a Required Action and associated Completion Time not met, or the stored diesel fuel oil, lube oil or starting air subsystem not within limits for reasons other than addressed by Conditions A through D, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable.

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SURVEILLANCE  
REQUIREMENTS

SR 3.8.3.1

This SR provides verification that there is an adequate inventory of fuel oil in the storage tanks to support each DG's operation for 7 days at maximum expected post LOCA loading. The 7 day period is sufficient time to place the unit in a safe shutdown condition and to bring in replenishment fuel from an offsite location.

The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and unit operators would be aware of any large uses of fuel oil during this period.

SR 3.8.3.2

This Surveillance ensures that sufficient lube oil inventory is available to support at least 7 days of maximum expected post LOCA load operation for each DG. This requirement is based on the DG manufacturer's consumption values for the run time of the DG. Implicit in this SR is the requirement to verify the capability to transfer the lube oil from its storage location to the DG when the DG lube oil sump does not hold adequate inventory for 7 days of maximum expected post LOCA load operation without the level reaching the manufacturer's recommended minimum level.

A 31 day Frequency is adequate to ensure that a sufficient lube oil supply is onsite, since DG starts and run times are closely monitored by the plant staff.

ITS SURVEILLANCE TESTING CAPACITY AS PRESCRIBED BY TECHNICAL SPECIFICATIONS (5740 KW FOR DIVISION 1 AND 2, 3300 KW FOR DIVISION 3). THIS CAPACITY EXCEEDS THE

(continued)