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**Jerry C. Roberts**  
Director  
Nuclear Safety Assurance

March 29, ~~2001~~ 2002

U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Attention: Document Control Desk

Subject: Grand Gulf Nuclear Station  
Unit 1  
Docket No. 50-416  
License No. NPF-29  
Request for Enforcement Discretion from Technical Specification 3.8.1  
Required Action B.4 – Division 2 Diesel Generator

GNRO-2002/00031

Ladies and Gentlemen:

In a telephone conference on March 28, 2002 at 2400, Entergy Operations, Inc. EOI) informed the NRC staff of the need for enforcement discretion from the requirements of Grand Gulf Nuclear Station (GGNS) Technical Specification (TS) section 3.8.1 Required Action B.4 Completion Time. Technical Specification 3.8.1 Required Actions require that an inoperable Diesel Generator be restored to an OPERABLE status within 72 hours. If this Completion Time (i.e., allowed outage time) cannot be met, the unit must be in at least HOT SHUTDOWN (Mode 3) within the following 12 hours and in COLD SHUTDOWN (Mode 4) within the following 36 hours.


The Division 2 Diesel Generator (DG) was declared inoperable on March 26<sup>th</sup> at 0402, therefore, the time allowed for continued operation would end on March 29<sup>th</sup> at 0402. The Division 2 DG was declared inoperable due to planned maintenance. During the planned maintenance, the process of pressurizing and depressurizing the DG control air system, combined with infant mortality failures of some process sensors, caused subsequent trips of the DG requiring the DG to remain inoperable. An example of a sensor failure was a replacement jacket water temperature switch, which caused an air leak, and a subsequent DG trip. The time interval of the Technical Specification LCO (limiting condition for operation) in Mode 1 is insufficient to restore the system to operability for TS 3.8.1. The initial apparent cause for the inoperability is an air leak in the control air system caused by the failed temperature switch. As a result, enforcement discretion was requested to extend the Division 2 DG 72 hour allowed outage time (AOT) by 72 hours for TS 3.8.1 Required Action B.4. This extension to the TS required AOT will provide sufficient time to restore the inoperable DG and prevent a unit shutdown. Surveillances or maintenance activities that are not required by the Technical Specifications and have the potential to cause a plant transient will not be performed while this condition exists.

Entergy Operations Inc., is submitting by this letter, written documentation supporting our verbal request for enforcement discretion.

CORRECTED COPY

At approximately 0030 hours on March 29, 2002 NRC Region IV verbally approved our request for enforcement discretion and extended the Division 2 DG AOT by 72 hours. This request has been reviewed and accepted by the Onsite Safety Review Committee. Based on the guidelines of 10CFR50.92, Entergy Operations has concluded that this request involves no significant hazards considerations. This letter does not contain any commitments.

Yours truly,



Jerry C. Roberts  
 Director Nuclear Safety Assurance

MJL

attachment: Discussion of the enforcement discretion

cc:

Hoeg	T. L.	(GGNS Senior Resident)	(w/a)
Levanway	D. E.	(Wise Carter)	(w/a)
Reynolds	N. S.		(w/a)
Smith	L. J.	(Wise Carter)	(w/a)
Thomas	H. L.		(w/o)

Mr. E. W. Merschoff (w/2) Regional Administrator U.S. Nuclear Regulatory Commission Region IV 611 Ryan Plaza Drive, Suite 400 Arlington, TX 76011	ALL LETTERS
U.S. Nuclear Regulatory Commission ATTN: Mr. S. P. Sekerak, NRR/DLPM (w/2) <b>ATTN: FOR ADDRESSEE ONLY</b> ATTN: U.S. Postal Delivery Address Only Mail Stop 07D1 Washington, D.C. 20555-0001	ALL LETTERS – U.S. POSTAL SERVICE MAIL DELIVERY ADDRESS ONLY

March 29, 2002  
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## **I. Discussion of the Requirements for which Enforcement Discretion is Requested**

Enforcement discretion is requested for the following requirements:

Technical Specification (TS) Limiting Condition for Operation (LCO) 3.8.1, "AC Sources - Operating" requires that the following AC electrical power sources shall be OPERABLE: a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electric Power Distribution System; b. Three diesel generators (DG); and c. Division 1 and Division 2 automatic load sequencers to be OPERABLE in operational Conditions 1, 2, and 3. Technical Specification LCO 3.8.1, ACTION B.4 requires that if one required Diesel Generator is inoperable for reasons other than Condition F, that the DG be restored to OPERABLE status within 72 hours or that the unit be in at least HOT SHUTDOWN (Mode 3) within the following 12 hours and in COLD SHUTDOWN (Mode 4) within the following 36 hours (Required Action G). An extension of the 72-hour allowed out of service time by 72 hours for the above TS LCO Completion Times is requested.

NRC Inspection Manual, Part 9900 (issue dated 11/02/01), "Operations - Notices of Enforcement Discretion," Section B, 2.1, Item 1, states:

For an operating plant, the NOED is intended to (a) avoid unnecessary transients as a result of forcing compliance with the license condition and, thus, minimize potential safety consequences and operational risks or (b) avoid testing, inspection, or system realignment that is inappropriate for the particular plant conditions.

EOI believes that the circumstances described below meet the intended use of the NOED policy.

## **II. Circumstances Surrounding the Need for Enforcement Discretion**

The Division 2 Diesel Generator was declared inoperable on March 26<sup>th</sup> at 0402, therefore, the time allowed for continued operation would end on March 29<sup>th</sup> at 0402. The Division 2 DG was declared inoperable due to planned maintenance. During the planned maintenance, the process of pressurizing and depressurizing the DG control air system, combined with infant mortality failures of some process sensors, caused subsequent trips of the DG requiring the DG to remain inoperable. An example of a sensor failure was a replacement jacket water temperature switch, which caused an air leak, and a subsequent DG trip. The time interval of the Technical Specification LCO in Mode 1 is insufficient to restore the system to operability for TS 3.8.1. The initial apparent cause for the inoperability is an air leak in the control air system caused by the failed temperature switch. There are currently no identified historical events related to this failure.

As a result, enforcement discretion is requested to extend the 72 hour LCO, contained in Technical Specification 3.8.1 Required Action B.4 Completion Time, to 6 days (72 hours in addition to 72 hours). Any surveillance or maintenance activities not required by Technical Specification activities will be evaluated for their potential to introduce plant perturbations and postponed consistent with the compensatory actions described below. The NOED is intended to avoid a plant shutdown as a result of compliance with Technical Specification 3.8.1.

### III. Evaluation of the Safety Significance and Potential Consequences of the Proposed Request

The currently degraded condition of Division 2 Diesel Generator has two potential outcomes: either the plant is maintained in an at-power condition for an additional period of 72 hours to effect repairs on the Diesel Generator, or the plant proceeds to cold shutdown in accordance with the Technical Specifications. In assessing the safety significance and potential consequences of the proposed enforcement discretion, it is necessary to characterize the effects on plant safety for these two conditions.

An assessment of the change in the Grand Gulf Nuclear Station (GGNS) core damage frequency due to allowing continued operation while repairing the Division 2 Diesel Generator beyond the TS AOT (allowed outage time) of 72 hours was performed for an additional period of 72 hours. This assessment was performed with the GGNS PRA (probabilistic risk assessment) model used to support the license amendment request for DG extended AOT, dated January 31, 2002. The CDF (core damage frequency) and LERF (large early release frequency) values associated with the Division 2 DG out of service and the base average maintenance model are summarized below:

Metric	CDF	LERF
Baseline	1.40E-5/yr	1.17E-7/yr
EDG DG 2 OOS	1.68E-5/yr	2.56E-7/yr

The delta CDF for this change is conservatively determined based on the DG being out of service an additional 3 days (72 hours). Thus delta CDF is calculated as follows:

$$\begin{aligned}\Delta\text{CDF} &= (T_{\text{DG 2}}/T_{\text{YEAR}})\text{CDF}_{\text{DG 2 OOS}} + (365 - T_{\text{DG 2}})/T_{\text{YEAR}} \times \text{CDF}_{\text{BASE}} - \text{CDF}_{\text{BASE}} \\ &= (3\text{d}/365\text{d})(1.68\text{E}-5/\text{yr}) + (362\text{d}/365\text{d})(1.4\text{E}-5/\text{yr}) - (1.4\text{E}-5/\text{yr}) \\ &= 2.3\text{E}-8/\text{yr}\end{aligned}$$

Since this additional AOT increase is expected to be a one-time occurrence, the delta CDF on a yearly basis is also equivalent to the incremental conditional core damage probability (ICCDP).

$$\text{ICCDP} = (1.68\text{E}-5/\text{yr} - 1.40\text{E}-5/\text{yr}) \times (3\text{d}/365\text{d}/\text{yr}) = 2.3\text{E}-8$$

The delta LERF and ICLERP (incremental conditional large early release probability) are calculated in a similar manner with the following results:

$$\begin{aligned}\Delta\text{LERF} &= 1.14\text{E}-9/\text{yr} \\ \text{ICLERP} &= 1.14\text{E}-9\end{aligned}$$

These results are summarized in the table on the following page which also includes the significance guidance identified from Regulatory Guides 1.174 (CDF and LERF) and 1.177 (ICCDP and ICLERP). The GGNS result for each risk metric is well below the significance guidance.

<b>Risk Metric</b>	<b>Significance Guidance</b>	<b>GGNS Results</b>
$\Delta$ CDF <sub>AVG</sub>	<1.0E-06/yr	2.3E-8/yr
ICCDP	<5.0E-07	2.3E-8
$\Delta$ LERF <sub>AVG</sub>	<1.0E-07/yr	1.14E-9/yr
ICLERP	<5.0E-08	1.14E-9

The values obtained for the incremental risk demonstrate that the proposed increase in AOT has only a small quantitative impact on plant risk. Planned compensatory measures would also serve to further reduce the risk of continued power operation.

The very small change in risk does not justify the alternative of shutting the plant down to effect the repairs. While not quantifiable at GGNS (GGNS does not have a quantitative transition and shutdown model), there are risks associated with manually shutting the plant down from a stable condition. They include challenging systems that are currently in standby and requiring the operation of the decay heat removal systems with one train without its full complement of support systems. Therefore, we believe that the relative safety significance of the proposed enforcement discretion is low and the potential consequences of the proposed request are preferable to the potential consequences associated with plant shutdown.

Based on the above evaluation and the planned compensatory measures, Entergy Operations, Inc. concludes that the proposed enforcement discretion does not involve an increase in radiological risk and that the granting of enforcement discretion will not be a potential detriment to the public health and safety.

#### **IV. Justification of Enforcement Discretion Duration**

The temporary enforcement discretion is requested until 0402 hours on April 1, 2002, for the Technical Specification Required Actions. This extension is sufficient to complete necessary repairs and perform necessary post maintenance testing. During this period, GGNS proposes to conduct parallel activities to restore the DG to an OPERABLE status and to minimize the risk associated with the degraded condition.

#### **V. No Significant Hazards Considerations**

1. The Commission has provided standards for determining whether a no significant hazards consideration exists. The enforcement discretion involves a no significant hazards consideration if operation of the facility in accordance with the enforcement discretion 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 request for enforcement discretion as follows:

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

The Division 2 DG is not the initiator of any evaluated accident and the normal method of powering the unit is unaffected by this condition. Therefore, this extension in the allowed out of service time does not result in a significant increase in the probability of an accident previously evaluated. The proposed compensatory actions being taken provide an added level of assurance that the unaffected safety systems remain OPERABLE and that the probability of accident precursors is minimized.

Without additional failures, adequate safety systems will remain available to support the accident analysis presented in the UFSAR (Updated Final Safety Analysis Report) for GGNS. The compensatory actions being taken are providing an added level of assurance that these unaffected safety systems remain OPERABLE and that the consequences of previously analyzed accidents are not significantly increased.

Therefore, the requested enforcement discretion does not result in a significant increase in the probability or consequences of an accident previously evaluated.

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

The requested change will not create any new modes of plant or equipment operation. 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.**

Since there are no changes to the plant design and safety analysis, and no changes to the DG design, including any instrument setpoints, no margin of safety assumed in the safety analysis is affected. If a margin of safety is ascribed to DG availability and plant risk, it has also been determined that such a margin of safety is not significantly reduced, as the proposed changes have been evaluated. Applicable regulatory requirements will continue to be met, adequate defense-in-depth will be maintained, sufficient safety margins will be maintained, and any increase in CDF is small and consistent with the NRC Safety Goal Policy Statement. Furthermore, increases in risk posed by potential unplanned combinations of equipment out of service during the proposed AOT extension will be managed under a configuration risk management program consistent with 10CFR50.65, "Requirements for

Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” paragraph (a)(4).

The availability of offsite power coupled with the availability of the other DGs, the use of the compensatory measures identified in Section VII, and the use of on-line risk assessment tools provide adequate compensation for the potential small incremental increase in plant risk of the extended AOT. The proposed extended DG AOT in conjunction with the availability of the other DGs continues to provide adequate assurance of the capability to provide power to the engineered safety features (ESF) buses. Therefore, implementation of the proposed changes will not involve a significant reduction in the margin of safety.

Based on the evaluations discussed in Section III and the planned compensatory measures, Entergy Operations, Inc. concludes that the proposed enforcement discretion does not involve an increase in radiological risk and that the granting of enforcement discretion will not be a potential detriment to the public health and safety.

3. Based on the above evaluation, operation in accordance with the proposed enforcement discretion involves no significant hazards considerations.

## **VI. Basis That This Does Not Involve Adverse Environmental Consequences**

The requested enforcement discretion does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation, exposure. Accordingly, the requested enforcement discretion meets the eligibility criterion for categorical exclusion set forth in 10CFR51.22(c)(9). Therefore, pursuant to 10CFR51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the requested enforcement discretion.

## **VII. Proposed Compensatory Measures**

The following compensatory actions are being taken to provide an added level of assurance that unaffected safety systems remain OPERABLE and that the probability of accident precursors is minimized.

### **Unit staffing and management oversight**

1. Increased around the clock staffing, including management personnel.

### **Electrical support availability**

2. Two offsite power sources are available as required by Technical Specifications.



In addition, a 115kv offsite power source is functional and may be used to power ESF buses, however it is currently inoperable per Technical Specifications.

3. The load dispatcher has been notified to suspend work which could affect the stability to the GGNS offsite power sources.
4. Work will not be performed in the GGNS switchyard that is not necessary.
5. The electrical cross tie of the Division 3 diesel generator to selected Division 1 or 2 loads is proceduralized. The procedure for performing this activity has been reviewed by licensed operator and Electrical Maintenance personnel.
6. We will monitor for severe weather conditions that could threaten the availability of offsite power sources.

#### **Availability of other systems**

7. Voluntary maintenance and surveillance activities that affect Division 1 and 3 operability have been suspended for the duration of the enforcement discretion.
8. All Division 1 and Division 3 equipment will be maintained OPERABLE and reviewed as required by Technical Specifications LCO 3.0.6 and the Safety Function Determination Program.
9. The Reactor Core Isolation Cooling (RCIC) system will be maintained OPERABLE.
10. The equipment for the alternate water injection using the fire water system is proceduralized and available.
11. All ECCS pumps will be maintained available for auto injection.

#### **Surveillances**

12. Verified that no surveillances are currently scheduled which would require equipment to be unavailable on the unaffected divisions.
13. Verified that no surveillances are currently scheduled which would affect electrical power availability.
14. Verified that no surveillances will go past their required TS required surveillance periodicity.
15. Verified that no surveillances would be performed which could cause a plant transient.

The compensatory measures will be added to the "standing orders" and will be reviewed in pre-shift briefings for the oncoming Operations shifts.

**VIII. Onsite Plant Safety Review Committee Review**

This request has been reviewed and accepted by the Onsite Safety Review Committee.

**IX. NOED Criteria Satisfied for the Current Plant Conditions**

At the time the enforcement discretion was verbally requested (approximately 0001 hours CST on March 29, 2002), the plant was in Mode 1, "Power Operations," at 100 percent power. As of the date of this letter, the plant continues to operate at or near full power. Approval of the request was appropriate and needed to avoid undesirable transients as a result of forcing compliance with the Actions for a Limiting Condition for Operation, thus, minimizing potential adverse safety consequences and operational risks as outlined in NRC Inspection Manual, Part 9900 (issue date 11/02/01), "Operations - Notices of Enforcement Discretion," Section B, 2.1, Item 1. EOI believes that the circumstances described in the above sections meet the intended use of the NOED policy.

**X. Follow-up License Amendment Required**

No follow-up licensee amendment is required.

**XI. For NOEDs Involving Severe Weather Or Other Natural Events, The Licensee's Request Must Be Sufficiently Detailed For The Staff To Evaluate The Likelihood That The Event Could Affect The Plant, The Capability Of The Ultimate Heat Sink, On-Site And Off-Site Emergency Preparedness Status, Access To And From The Plant, Acceptability Of Any Increased Radiological Risk To The Public And The Overall Public Benefit.**

This criterion is not applicable to this request.