



**ENTERGY**

**Entergy Operations, Inc.**

P.O. Box 756

Port Gibson, MS 39150

Tel 601 437 6470

**M. J. Meisner**

Director

Nuclear Safety & Regulatory Affairs

July 15, 1996

U.S. Nuclear Regulatory Commission  
Director, Office of Nuclear Material Safety and Safeguards  
Washington, D.C. 20555

Subject: Grand Gulf Nuclear Station  
Docket No. 50-416  
License No. NPF-29  
10CFR70.24 Exemption

Reference: 1) AECM-81/158 dated April 27, 1981 Application for SNM License from  
Mississippi Power & Light to the NRC.  
2) NRC letter dated July 15, 1981, NRC Materials License No. SNM-  
1882

GNRO-96/00082

Gentlemen:

By this letter, Entergy Operations, Inc. requests an exemption from the requirements of 10CFR 70.24(a), "Criticality Accident Requirements" for Grand Gulf Nuclear Station (GGNS). The basis for this request is similar to the previously provided basis for the exemption to 10CFR 70.24 (granted in the July 15, 1981 Special Nuclear Material (SNM) License No. 1882 for this facility). This letter requests a regranting of part of the previously approved exemption to the requirements of 10CFR 70.24. It is our understanding that the NRC Staff has taken the position that unless an exemption granted under a 10CFR 70 license is explicitly incorporated into the subsequently granted 10CFR 50 Operating License, that the exemption expires with the issuance of the 10CFR 50 licenses. As a result, although there is precedent to the contrary<sup>1</sup>, the previous 10CFR 70.24 exemption is considered to have expired with the SNM License (No. 1882) when the Operating License (OL) was issued since the exemption was not specifically reissued at the time of OL issuance. Therefore, an exemption is requested to the criticality accident monitoring requirements of 10CFR 70.24(a) specifically for the areas containing

<sup>1</sup> On May 11, 1988 the NRC Staff and OGC issued a letter to the Tennessee Valley Authority (TVA) (see letter from R.A. Hermann (NRC) to S.A. White (TVA) "Criticality Monitoring") wherein the Staff considered the previously issued 10CFR Part 70 exemptions for Browns Ferry to remain in effect although the exemption wording was not transferred from the SNM License to the Operating License.

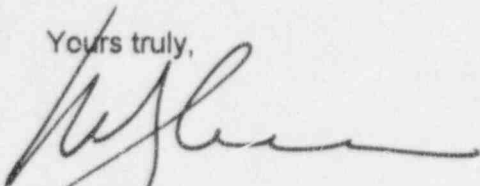
AWI 1/1

July 15, 1996  
GNRO-96/00082  
Page 2 of 4

incore detectors (which are not in use) and unirradiated fuel stored in NRC approved packaging, with the restriction noted in the exemption request and justification section.

We have satisfied the good cause requirements outlined in 10CFR 70.24(d) and the basis is provided in the attached exemption request and justification. We feel the requested exemption is authorized by law, will not endanger life or property or the common defense and security, and are otherwise in the public interest.

Yours truly,

A handwritten signature in black ink, appearing to be 'MJM/MJL', written over the typed name.

MJM/MJL  
attachment:

10CFR 70.24 Exemption Request and Justification

July 15, 1996  
GNRO-96/00082  
Page 3 of 4

cc:

Mr. J. E. Tedrow (w/a)  
Mr. R. B. McGehee (w/a)  
Mr. N. S. Reynolds (w/a)  
Mr. H. L. Thomas (w/o)  
Mr. J. W. Yelverton (w/a)

Mr. L. J. Callan (w/a)  
Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region IV  
611 Ryan Plaza Drive, Suite 400  
Arlington, TX 76011

Mr. J. N. Donohew, Project Manager (w/2)  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Mail Stop 13H3  
Washington, D.C. 20555

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

**ATTACHMENT 1**

**10CFR70.24 EXEMPTION REQUEST and JUSTIFICATION**

## 10CFR70.24 EXEMPTION REQUEST and JUSTIFICATION

### EXEMPTIONS REQUESTED:

Exemption is requested from the criticality accident monitoring requirements of 10CFR 70.24(a) for Special Nuclear Material (SNM) areas for SNM in the form of not in use in-core nuclear instrumentation [for example: source range monitors (SRMs), intermediate range monitors (IRMs), local power range monitors (LPRMs), and traversing incore probe (TIPs)].

Exemption is also requested for storage areas of unirradiated fuel that is packaged in accordance with 10CFR 71. The fuel bundles, packaged in NRC approved packaging, may be stored in unmonitored areas as long as the following restriction is met; the fuel assemblies will only be removed from the NRC approved packaging in areas where criticality monitors are in use.

This exemption is necessary to clarify the requirements of the Operating License for GGNS, which in general invokes 10CFR 70 as a whole. The two exemptions specified above will in no way affect the health and safety of the public.

### GOOD CAUSE JUSTIFICATION:

Section 70.24(d) anticipates that licensees may request relief from these requirements and allows licensees to apply for an exemption from Section 70.24, in whole or in part, if good cause is shown. Grand Gulf believes that good cause exists for following reasons:

#### Incore Detectors

The major form of SNM used at Grand Gulf is present principally in the form of nuclear fuel. However, other quantities of SNM are used, or may be used (and stored), at the facility in the form of fissile material incorporated into incore nuclear instrumentation [for example: source range monitors (SRMs), intermediate range monitors (IRMs), local power range monitors (LPRMs), and traversing incore probe (TIPs)]. The amount of SNM contained in the nuclear instrumentation is small and significantly less than the quantities specified in Section 70.24(a). The small quantity of SNM present in the nuclear instrumentation and the form in which the SNM is maintained (a very thin coating applied on the inside of the sealed fission chamber contained at the end of each monitor) precludes inadvertent criticality.

The total amount of SNM contained in the incore detectors is such that it also meets the "forms not sufficient to form a critical mass" guidance in Section 1.1 of Regulatory Guide 10.3, "Guide for the Preparation of Applications for Special Nuclear Material Licenses of Less than Critical Mass Quantities." The quantities of SNM specified to be enough for a critical mass in Reg. Guide 10.3 are 350 grams of U-235, 200 grams U-233, and 200 grams of Pu-239.

The quantities of SNM in the form of incore detectors at Grand Gulf as of July 8, 1996 are as follows.

*Note: this listing is for information only and not intended as a limiting listing.*

Not used and Stored*	no. detectors	U235/detector (grams)	total U235 (grams)
SRMs	9	0.0027	0.02430
IRMs	5	0.00075	0.00375
TIPs	1	0.0015	0.00150
LPRMs	104	0.00022	0.02288
Total			0.05243

\*Other irradiated detectors stored in the spent fuel pool are not included in this table since dose rates on irradiated detectors preclude personnel access.

These quantities are well below the amounts for which criticality monitoring would be required as outlined in 10CFR 70.24(a). If this was the only type of SNM stored on onsite, criticality monitoring would not be required. Since the form of SNM on the incore detectors is such that an inadvertent criticality cannot occur, we feel we have demonstrated the good cause requirements for an exemption to 10CFR 70.24(d).

#### Unirradiated Nuclear Fuel

Unirradiated nuclear fuel packaged in a NRC approved packaging is precluded from criticality events due to the construction of the package and the storage configuration of the fuel in the package. Package design ensures that a geometrical criticality safe configuration is maintained during transport, handling, storage, and accident conditions. Package design also precludes introduction of any moderating agents due to leak tight construction. NRC approval (given by issuance of NRC Certificate of Compliance for Radioactive Materials Packages) of the package design is certification by the NRC that any incident which could occur during transport could not cause a criticality accident. We only receive fuel that is packaged in NRC approved packaging. Since we will only remove the fuel from these criticality accident safe NRC approved packages in areas for which criticality accident monitoring is provided, we feel we have shown good cause for an exemption to the criticality monitoring requirements of 10CFR 70.24(a).

#### COST:

Compliance with 10CFR 70.24 would result in a considerable expenditure of resources to install, maintain, and operate a criticality accident monitoring system for storage of the items listed in the exemption. We believe these resources could be put to better use in other areas to improve the operation of Grand Gulf Nuclear Station.



**RISK TO PUBLIC HEALTH AND SAFETY:**

Due to the form of SNM contained in the incore detectors and as long as unirradiated fuel is stored in its NRC approved shipping package, criticality will not occur. Since criticality accidents cannot occur with the SNM in question, public health and safety considerations are preserved.

**CONCLUSION:**

Based on the above request and justification evaluation, Entergy Operations, Inc. has concluded that operation in accordance with the proposed exemption to 10CFR 70.24(a) is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security