

December 18, 2000

Mr. Michael R. Kansler
Vice President, Operations Support
Entergy Operations, Inc.
P.O. Box 31995
Jackson, MS 39286-1995

SUBJECT: GRAND GULF NUCLEAR STATION, UNIT 1 - ISSUANCE OF AMENDMENT
RE: LABORATORY TESTING OF ACTIVATED CHARCOAL (TAC
NO. MA8097)

Dear Mr. Kansler:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 144 to Facility Operating License No. NPF-29 for Grand Gulf Nuclear Station (GGNS), Unit 1. This amendment revises the Technical Specifications (TSs) in response to your application dated November 23, 1999.

The amendment incorporates the use of American Society for Testing and Materials D3803-1989, "Standard Test Method for Nuclear-Grade Activated Carbon," into the GGNS TSs.

A copy of our related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

S. Patrick Sekerak, Project Manager, Section 1
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-416

Enclosures:

- 1. Amendment No. 144 to NPF-29
- 2. Safety Evaluation

cc w/encls: See next page

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NRR-058

Grand Gulf Nuclear Station

cc:

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

ENERGY OPERATIONS, INC.

SYSTEM ENERGY RESOURCES, INC.

SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION

ENERGY MISSISSIPPI, INC.

DOCKET NO. 50-416

GRAND GULF NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 144
License No. NPF-29

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Entergy Operations, Inc. (the licensee) dated November 23, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Facility Operating License No. NPF-29 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 144, are hereby incorporated into this license. Entergy Operations, Inc. shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert A. Gramm, Chief, Section 1
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: December 18, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 144

FACILITY OPERATING LICENSE NO. NPF-29

DOCKET NO. 50-416

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

5.0-12

Insert

5.0-12

5.5 Programs and Manuals (continued)

5.5.7 Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in Regulatory Guide 1.52, Revision 2.

- a. Demonstrate for each of the ESF systems that an in-place test of the high efficiency particulate air (HEPA) filters shows a penetration and system bypass < 0.05% when tested in accordance with Regulatory Guide 1.52, Revision 2, and ANSI N510-1975 at the system flowrate specified below \pm 10%:

<u>ESF Ventilation System</u>	<u>Flowrate</u>
SGTS	4000 cfm
CRFA	4000 cfm

- b. Demonstrate for each of the ESF systems that an in-place test of the charcoal adsorber shows a penetration and system bypass < 0.05% when tested in accordance with Regulatory Guide 1.52, Revision 2, and ANSI N510-1975 at the system flowrate specified below \pm 10%:

<u>ESF Ventilation System</u>	<u>Flowrate</u>
SGTS	4000 cfm
CRFA	4000 cfm

- c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 2, shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and the relative humidity specified below:

<u>ESF Ventilation System</u>	<u>Penetration</u>	<u>RH</u>
SGTS	0.5%	70%
CRFA	2.5%	70%

(continued)



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 144 TO FACILITY OPERATING LICENSE NO. NPF-29

ENERGY OPERATIONS, INC., ET. AL.

GRAND GULF NUCLEAR STATION, UNIT 1

DOCKET NO. 50-416

1.0 INTRODUCTION

By letter dated November 23, 1999, Entergy Operations, Inc., et. al. (the licensee) submitted a request for changes to the Grand Gulf Nuclear Station, Unit 1 (GGNS), Technical Specifications (TSs). The changes would incorporate the use of American Society for Testing and Materials (ASTM) D3803-1989, "Standard Test Method for Nuclear-Grade Activated Carbon," into the GGNS TSs.

2.0 EVALUATION

The Nuclear Regulatory Commission (NRC or the Commission) staff, with technical assistance from Brookhaven National Laboratory (BNL), has reviewed the licensee's submittal. In addition, the staff has reviewed the attached BNL Technical Evaluation Report (TER) regarding the proposed TS changes for GGNS. Based on its review, the staff adopts the TER. In view of the above, and because the NRC staff considers ASTM D3803-1989 to be the most accurate and most realistic protocol for testing charcoal in safety-related ventilation systems, the NRC staff finds that the proposed TS changes satisfy the actions requested in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999, and are acceptable.

The NRC received a letter from ASTM dated March 9, 2000, in response to a March 8, 2000, Federal Register Notice (65 FR 12286 - 12299) related to revising testing standards in accordance with ASTM D3803-1989 for laboratory testing of activated charcoal. ASTM notified the NRC that the 1989 standard is out of date and should be replaced by D3803-1991(1998). The staff acknowledges that the most current version of ASTM D3803 is ASTM D3803-1991 (reaffirmed in 1998). However, it was decided, for consistency purposes, to have all of the nuclear reactors test to the same standard (ASTM D3803-1989) because, prior to GL 99-02 being issued, approximately one third of nuclear reactors had TSs that referenced ASTM D3803-1989 and there are no substantive changes between the 1989 and 1998 versions.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Mississippi State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (65 FR 12291, dated March 8, 2000). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). The amendment also changes administrative requirements. Therefore, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(10). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Attachment: BNL TER

Principal Contributor: J. Segala

Date: December 18, 2000

TECHNICAL EVALUATION REPORT
BROOKHAVEN NATIONAL LABORATORY
FOR THE OFFICE OF NUCLEAR REACTOR REGULATION
DIVISION OF SYSTEMS SAFETY AND ANALYSIS
PLANT SYSTEMS BRANCH
RELATED TO AMENDMENT TO FACILITY OPERATING LICENSE NO. NPF - 29
ENTERGY OPERATIONS, INC.
GRAND GULF NUCLEAR STATION

1.0 INTRODUCTION

By letter dated November 23, 1999 (CNRO-99/00026), Entergy Operations submitted its response to the actions requested in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999, for the Grand Gulf Nuclear Station (GGNS). By the same letter dated November 23, 1999, Entergy Operations requested changes to the Technical Specifications (TS) Section 5.5.7.c, covering the Standby Gas Treatment System (SGTS) and the Control Room Fresh Air System (CRFAS), for GGNS. The proposed change would revise the TS surveillance testing of the safety related ventilation system charcoal to meet the requested actions of GL 99-02.

2.0 BACKGROUND

Safety-related air-cleaning units used in the engineered safety features (ESF) ventilation systems of nuclear power plants reduce the potential onsite and offsite consequences of a radiological accident by filtering radioiodine. Analyses of design basis accidents assume particular safety related charcoal adsorption efficiencies when calculating offsite and control room operator doses. To ensure that the charcoal filters used in these systems will perform in a manner that is consistent with the licensing basis of a facility, licensees have requirements in their TS to periodically perform a laboratory test (in accordance with a test standard) of charcoal samples taken from these ventilation systems.

In GL 99-02, the staff alerted licensees that testing nuclear-grade activated charcoal to standards other than American Society for Testing and Materials (ASTM) D3803-1989, "Standard Test Method for Nuclear-Grade Activated Carbon," does not provide assurance for complying with their current licensing bases with respect to the dose limits of General Design Criterion (GDC) 19 of Appendix A to Part 50 of Title 10 of the Code of Federal Regulations (10 CFR) and Subpart A of 10 CFR Part 100.

GL 99-02 requested that all licensees determine whether their TS reference ASTM D3803-1989 for charcoal filter laboratory testing. Licensees whose TS do not reference ASTM D3803-1989 were requested to either amend their TS to reference ASTM D3803-1989 or propose an alternative test protocol.

3.0 EVALUATION

3.1 Laboratory Charcoal Sample Testing Surveillance Requirements

The current and proposed laboratory charcoal sample testing TS surveillance requirements for the Standby Gas Treatment System (SGTS) and the Control Room Fresh Air System (CRFAS) are shown in Table 1 and Table 2, respectively, for the Grand Gulf Nuclear Station.

The proposed use of ASTM D3803-1989 is acceptable because it provides accurate and reproducible test results. The proposed test temperature of 30 °C for both systems is acceptable because it is consistent with ASTM D3803-1989. The proposed test relative humidity (RH) of 70 percent is also acceptable, because both systems are equipped with heaters to maintain the RH at less than or equal to 70 percent during accident conditions. This is consistent with the actions requested in GL 99-02.

On the basis of the UFSAR Tables 6.5-8 and 9.4-1, the credited removal efficiencies for radioactive organic iodine for the SGTS and the CRFAS are 99% and 95%, respectively. The proposed test penetration for radioactive methyl iodide for the SGTS is less than 0.5 % and for the CRFAS is less than 2.5%. The proposed test penetration was obtained by applying a safety factor of 2 to the credited efficiency. The proposed safety factor of 2 for all systems is acceptable because it ensures that the efficiency credited in the accident analysis is still valid at the end of the surveillance interval. This is consistent with the minimum safety factor of 2 specified in GL 99-02.

The August 23, 1999 errata to GL 99-02 clarified that if the maximum actual face velocity is greater than 110% of 40 fpm, then the test face velocity should be specified in the TS. In accordance with UFSAR Tables 6.5-8 and 9.4-1, the nominal face velocity of each system is 40 fpm. The proposed testing of the charcoal adsorbers will be performed in accordance with ASTM D3803-1989 which specifies a test face velocity of 40 fpm with appropriate margins. This is acceptable because it ensures that the testing will be consistent with the operation of the ventilation system during accident conditions. Therefore, it is not necessary to specify the face velocity in the proposed TS change. This is consistent with the errata to GL 99-02 dated August 23, 1999.

4.0 CONCLUSION

On the basis of its evaluation, BNL recommends that the NRC staff consider the proposed TS changes to be acceptable.

Principal Contributor: Richard E. Deem and Mano Subudhi

Date: November 20, 2000

GRAND GULF NUCLEAR STATION

TABLE 1 - CURRENT TS REQUIREMENTS											
System Description						Current TS Requirements					
TS Section	System	Bed Thickness (inches) ***	Actual Charcoal		Credited Efficiency (% methyl iodine)	Test Penetration (% methyl iodide)	Safety Factor	Test Standard **	Test Temp (° C) **	Test RH %	Test Face Velocity (fpm)
			Res. Time (sec) ****	Face Velocity (fpm) ****							
5.5.7.c	Standby Gas Treatment System (SGTS)	8	1.0	40	99	<0.175	Not stated (5.7)*	Reg. Guide 1.52 Rev.2, March 1978 Regulatory Position C.6.a	80	≥70	Not stated
5.5.7.c	Control Room Fresh Air (CRFAS)	2	0.25	40	95	<0.175	Not stated (28.6)*	Reg. Guide 1.52 Rev.2, March 1978 Regulatory Position C..6.a	80	≥70	Not stated

* Current safety factor is calculated based on credited efficiency and test penetration, assuming there has been no change in credited efficiency.

** Regulatory Position C.6.a in RG 1.52, Rev.2 refers to ANSI N509-1976 which in turn refers to Military Specification RDT M 16-1T. In accordance with this specification, the test is to be conducted at 80° C and 70% or 95% RH with pre-loading and post-loading sweep at 25° C.

*** Per UFSAR Table 6.5-1.

**** Per UFSAR Table UFSAR Tables 6.5-8 and 9.4-1.

GRAND GULF NUCLEAR STATION

TABLE 2 - PROPOSED TS REQUIREMENTS											
System Description					Proposed TS Requirements						
TS Section	System	Bed Thickness (inches) **	Actual Charcoal		Credited Efficiency (% methyl iodide)	Test Penetration (% methyl iodide)	Safety Factor	Test Standard	Test Temp (° C)	Test RH (%)	Test Face Velocity (fpm)*
			Res. Time (sec) ***	Face Velocity (fpm) ***							
5.5.7.c	Standby Gas Treatment System (SGTS)	8	1.0	40	99	<0.5	2	ASTM D3803-1989	30	70	40
5.5.7.c	Control Room Fresh Air (CRFA) System	2	0.25	40	95	<2.5	2	ASTM D3803-1989	30	70	40

* Test face velocity is in accordance with ASTM D3803-89.

** Per UFSAR Table 6.5-1.

*** Per UFSAR Table UFSAR Tables 6.5-8 and 9.4-1.