

December 27, 2000

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

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 - ISSUANCE OF
AMENDMENT RE: LABORATORY TESTING OF NUCLEAR-GRADE
ACTIVATED CHARCOAL (TAC NOS. MA8105)

Dear Mr. Kansler:

The Commission has issued the enclosed Amendment No. 170 to Facility Operating License No. NPF-38 for the Waterford Steam Electric Station, Unit 3. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated November 23, 1999, as supplemented by letter dated October 12, 2000.

The amendment incorporates the use of American Society of Testing and Materials (ASTM) D3803-1989, "Standard Test Method for Nuclear-Grade Activated Carbon," into the facility's TS.

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/

N. Kalyanam, Project Manager, Section 1
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosures: 1. Amendment No. 170 to NPF-38
2. Safety Evaluation

cc w/encls: See next page

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DISTRIBUTION:

PUBLIC	PDIV-1 Reading
RidsNrrDripRtsb (WBeckner)	RidsNrrDlpmPdiv (SRichards)
RidsOgcRp	RidsAcrcAcnwMailCenter
G.Hill(2)	RidsNrrDlpmPdivLpdiv1 (RGramm)
RidsNrrPMNKalyanam	RidsNrrLADJohnson
JRaval	RidsRgn4MailCenter (KBrockman)
L.Hurley, RIV	D. Bujol, RIV

Accession No.: ML003781196 TS: ML010310226 Pkg: ML010310330 * Used SE Input

OFFICE	PDIV-1/PM	PDIV-1/LA	OGC NLO w/Comment	PDIV-1/SC
NAME	NKalyanam	DJohnson	RWeisman	DJaffe for RGramm
DATE	12/20/00	12/20/00	12/24/00	12/27/00

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ENTERGY OPERATIONS INC.

DOCKET NO. 50-382

WATERFORD STEAM ELECTRIC STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.170

License No. NPF-38

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, as supplemented by letter dated October 12, 2000, 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-38 is hereby amended to read as follows:

- (2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 170, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee 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

/RA/ by DJaffe for

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 27, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 170

TO FACILITY OPERATING LICENSE NO. NPF-38

DOCKET NO. 50-382

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

3/4 6-38
3/4 7-16
3/4 7-17
3/4 7-19
3/4 7-20
3/4 9-15
B 3/4 6-7

B 3/4 7-4a
B 3/4 7-4b
B 3/4 7-4c

B 3/4 7-5
B 3/4 9-3

Insert

3/4 6-38
3/4 7-16
3/4 7-17
3/4 7-19
3/4 7-20
3/4 9-15
B 3/4 6-7
B 3/4 6-8
B 3/4 7-4a
B 3/4 7-4b
B 3/4 7-4c
B 3/4 7-4d
B 3/4 7-5
B 3/4 9-3

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 170 TO

FACILITY OPERATING LICENSE NO. NPF-38

ENERGY OPERATIONS, INC.

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NO. 50-382

1.0 INTRODUCTION

By application dated November 23, 1999, as supplemented by letter dated October 12, 2000, Entergy Operations, Inc. (the licensee), submitted a request for changes to the Waterford Steam Electric Station, Unit 3, (Waterford 3) Technical Specifications (TSs). The proposed changes would change TS 3/4.6.6.1, "Shield Building Ventilation System," TS 3/4.7.6.1, "Control Room Emergency Air Filtration System," TS 3/4.7.7, "Controlled Ventilation Area System," and TS 3/4.9.12, "Fuel Handling Building Ventilation System," and associated Bases to include the requirement for laboratory testing of the charcoal samples from the systems identified above per American Society for Testing and Materials (ASTM) D3803-1989 and the application of a safety factor of 2.0 to the charcoal filter efficiency assumed in the plant design-basis dose analyses and the associated Bases Sections. The October 12, 2000, supplement provided clarifying information that did not change the scope of the application or its associated no significant hazards consideration determination.

2.0 EVALUATION

The NRC staff, with technical assistance from Brookhaven National Laboratory (BNL), has reviewed the licensee's submittals. In addition, the staff has reviewed the attached BNL Technical Evaluation Report (TER) regarding the proposed TS changes for Waterford 3. 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 Louisiana State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes surveillance requirements. 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 no public comment on such finding (65 FR 12291, dated March 8, 2000). The October 12, 2000, supplement provided clarifying information that did not expand the scope of the original Federal Register notice, or change the scope of the initial proposed no significant hazards consideration determination. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). 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.

Principal Contributor: J. Raval

Date: December 27, 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 - 38
ENERGY OPERATIONS, INC.
WATERFORD 3 STEAM ELECTRIC STATION
DOCKET NO. 50 - 382

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 Waterford 3 Steam Electric Station (W3). By the same letter dated November 23, 1999, Entergy Operations requested changes to the Technical Specifications (TS) Section 4.6.6.1.b.2 and 4.6.6.1.c, covering the Shield Building Ventilation System (SBVS), 4.7.6.1.b.2 and 4.7.6.1.c, for the Control Room Emergency Air Filtration System (CREAFS), 4.7.7.b.2 and 4.7.7.c, for the Controlled Area Ventilation System (CAVS), and 4.9.12.b.2 and 4.9.12.c, for the Fuel Handling Building Ventilation System (FHBVS), for W3. By letter dated October 12, 2000, Entergy Operations submitted a letter indicating actual face velocities for all four systems. 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 Shield Building Ventilation System (SBVS), the Control Room Emergency Air Filtration System (CREAFS), the Controlled Area Ventilation System (CAVS), and the Fuel Handling Building Ventilation System (FHBVS) are shown in Table 1 and Table 2, respectively, for the Waterford 3 Steam Electric 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 all four systems is acceptable because it is consistent with ASTM D3803-1989. The proposed test relative humidity (RH) of 70% is also acceptable, because all four 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 FSAR Table 6.2-28 and by letter dated November 23, 1999, the credited removal efficiency for radioactive organic iodine for all four systems is 99%. The proposed test penetration for radioactive methyl iodide for all four systems is less than 0.5%. 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. By letter dated October 12, 2000, each charcoal adsorber is designed for a nominal face velocity of 40 fpm \pm 10% based on a design flow rate for the system. 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 Contributors: Richard E. Deem and Mano Subudhi
Date: November 22, 2000

WATERFORD 3 STEAM ELECTRIC 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) ****							
4.6.6.1. b.2 and 4.6.6.1.c	Shield Building Ventilation System (SBVS)	4	0.25 per 2 inch bed	40 ± 10%	99	0.175	Not stated (5.7)*	Reg. Guide 1.52 Rev.2, March 1978, Regulatory Position C.6.a	80	70	Not Stated
4.7.6.1. b.2 and 4.7.6.1.c	Control Room Emergency Air Filtration System (CREAFS)	4	0.25 per 2 inch bed	40 ± 10%	99	0.175	Not stated (5.7)*	Reg. Guide 1.52 Rev.2, March 1978, Regulatory Position C.6.a	80	70	Not Stated
4.7.7.b. 2 and 4.7.7.c	Controlled Area Ventilation System (CAVS)	4	0.25 per 2 inch bed	40 ± 10%	99	0.175	Not stated (5.7)*	Reg. Guide 1.52 Rev.2, March 1978, Regulatory Position C.6.a	80	70	Not Stated
4.9.12.b .2 and 4.9.12.c	Fuel Handling Building Ventilation System (FHBVS)	4	0.25 per 2 inch bed	40 ± 10%	99	0.175	Not stated (5.7)*	Reg. Guide 1.52 Rev.2, March 1978, Regulatory Position C.6.a	80	70	Not Stated

* Safety factor is calculated based on the credited efficiency and test penetration stated in the current TS.
 ** 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 FSAR Section 6.5.1.2.2.f.
 **** Per Letter dated October 12, 2000.
 ***** Per RG 1.52, rev.2, Table 2.

WATERFORD 3 STEAM ELECTRIC 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) ***							
4.6.6.1. b.2 and 4.6.6.1.c	Shield Building Ventilation System (SBVS)	4	0.25 per 2 inch bed	40 ± 10%	99	<0.5	2	ASTM D3803-1989	30	70	40
4.7.6.1. b.2 and 4.7.6.1.c	Control Room Emergency Air Filtration System (CREAFS)	4	0.25 per 2 inch bed	40 ± 10%	99	<0.5	2	ASTM D3803-1989	30	70	40
4.7.7.1. b.2 and 4.7.7.1.c	Controlled Area Ventilation System (CAVS)	4	0.25 per 2 inch bed	40 ± 10%	99	<0.5	2	ASTM D3803-1989	30	70	40
4.9.12.b .2 and 4.9.12.c	Fuel Handling Building Ventilation System (FHBVS)	4	0.25 per 2 inch bed	40 ± 10%	99	<0.5	2	ASTM D3803-1989	30	70	40

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

** Per FSAR Section 6.5.1.2.2.f.

*** Per Letter dated October 12, 2000.

Waterford Generating Station 3

cc:

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