

October 6, 2006

Mr. Joseph E. Venable
Vice President Operations
Entergy Operations, Inc.
17265 River Road
Killona, LA 70066-0751

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 - ISSUANCE OF
AMENDMENT RE: CORE OPERATING LIMITS REPORT (TAC NO. MC8767)

Dear Mr. Venable:

The Commission has issued the enclosed Amendment No. 210 to Facility Operating License No. NPF-38 for the Waterford Steam Electric Station, Unit 3 (Waterford 3). This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated October 25, 2005.

The amendment modifies the Waterford 3 TS 6.9.1.11, "Core Operating Limits Report COLR," to add a methodology that will allow the use of zirconium diboride burnable absorber coating on fuel pellets.

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/

Mel B. Fields, Senior Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosures:

1. Amendment No. 210 to NPF-38
2. Safety Evaluation

cc w/encls: See next page

October 6, 2006

Mr. Joseph E. Venable
Vice President Operations
Entergy Operations, Inc.
17265 River Road
Killona, LA 70066-0751

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 - ISSUANCE OF
AMENDMENT RE: CORE OPERATING LIMITS REPORT (TAC NO. MC8767)

Dear Mr. Venable:

The Commission has issued the enclosed Amendment No. 210 to Facility Operating License No. NPF-38 for the Waterford Steam Electric Station, Unit 3 (Waterford 3). This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated October 25, 2005.

The amendment modifies the Waterford 3 TS 6.9.1.11, "Core Operating Limits Report COLR," to add a methodology that will allow the use of zirconium diboride burnable absorber coating on fuel pellets.

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/

Mel B. Fields, Senior Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosures:

1. Amendment No. 210 to NPF-38
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION

PUBLIC	RidsNrrDorlLpl4	RidsNrrPMMFields
LPLIV r/f	RidsNrrLALFeizollahi	RidsNrrDirsltsb
Ghill	RidsAcrsAcnwMailCenter	RidsOgcRp
RidsNrrDorl	SWu, DSS	RidsRgn4MailCenter (DGraves)
RidsNrrDorlDpr		

ADAMS Accession Nos.: Pkg ML062790016 (ML061930421, TS Pgs ML062840075)

OFFICE	NRR/LPL4/PM	NRR/LPLI-1/LA	NRR/SNPB/BC	OGC-NLO	NRR/LPL4/BC
NAME	MFields	SLittle	FAkstulewicz	KWinsberg	DTerao
DATE	7/26/06	8/3/06	6/29/06	8/10/06	10/2/06

OFFICIAL RECORD COPY

ENERGY OPERATIONS, INC.

DOCKET NO. 50-382

WATERFORD STEAM ELECTRIC STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 210
License No. NPF-38

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Entergy Operations, Inc. (EOI), dated October 25, 2005, 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.
3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications and Facility Operating License

Date of Issuance: October 6, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 210

TO FACILITY OPERATING LICENSE NO. NPF-38

DOCKET NO. 50-382

Replace the following page of the Facility Operating License with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove

4

Insert

4

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove

6-20a

Insert

6-20a

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 210 TO

FACILITY OPERATING LICENSE NO. NPF-38

ENTERGY OPERATIONS, INC.

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NO. 50-382

1.0 INTRODUCTION

By application dated October 25, 2005 (Agencywide Documents and Access Management System (ADAMS) Accession No. ML053040089), Entergy Operations, Inc. (the licensee), requested a change to the Technical Specifications (TSs) for Waterford Steam Electric Station, Unit 3 (Waterford 3).

The proposed change would revise TS 6.9.1.11, "Core Operating Limits Report COLR," to add a methodology that will allow the use of zirconium diboride (ZrB_2) burnable absorber coating on fuel pellets.

The licensee plans a change in the burnable absorber design for the Waterford 3 Cycle 15. The change involves a transition from serbia integral burnable absorber, which is mixed in fuel pellets, to a burnable absorber coating of ZrB_2 on fuel pellets. The ZrB_2 burnable absorber was approved in WCAP-10444-P-A, "Westinghouse Reference Core Report, VANTAGE 5 Fuel Assembly." The use of ZrB_2 burnable absorber for Combustion Engineering (CE) fuel designs was approved in WCAP-16072-P-A, "Implementation of Zirconium Diboride Burnable Absorber Coatings in CE Nuclear Power Fuel Assembly Designs."

2.0 REGULATORY EVALUATION

The Nuclear Regulatory Commission's (NRC or the Commission) regulatory requirements related to the content of the TSs are set forth in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36, "Technical specifications." This regulation requires that the TSs include items in five specific categories. These categories include: (1) safety limits, limiting safety system settings and limiting control settings; (2) limiting conditions for operation (LCOs); (3) surveillance requirements (SRs); (4) design features; and (5) administrative controls.

The regulations in 10 CFR 50.90, "Application for amendment of license or construction permit," allow a licensee to amend or change the original license applications. The regulations in 10 CFR 50.92, "Issuance of amendment," specifies that the NRC staff will be guided by the considerations which govern the issuance of initial licenses to the extent applicable and appropriate in determining whether an amendment will be issued to the applicant.

Generic Letter (GL) 88-16 provides the COLR implementation guidance that includes the requirement to list in the TS the NRC-approved analytical methods used to determine the core operating limits. The analytical methods referenced in the TS would identify the topical report(s) by number, title, and date, or identify the NRC staff's safety evaluation (SE) for a plant-specific methodology by NRC letter and date. The licensee is requesting a license amendment change to add an approved reference in the TS COLR section.

3.0 TECHNICAL EVALUATION

The proposed license amendment will add a reference to the approved topical report WCAP-16072-P-A in the COLR. There are conditions and limitations attached in the SE of WCAP-16072-P-A. The NRC staff stated that licensees referencing this topical report must ensure compliance with these conditions and limitations as stated in the SE.

Condition 1 requires that the licensee add the approved methodology in the COLR. The licensee's proposed license amendment fulfills this condition.

Condition 2 requires that the licensee perform cycle-specific analysis to verify that required power margins in the axial cutback regions are maintained. The licensee made a commitment to perform cycle-specific evaluations as part of the reload analyses to verify that required power margins in the axial cutback regions are maintained within the safety analysis limitations. The NRC staff concludes that this commitment complies with Condition 2 and is, therefore, acceptable.

Condition 3 requires that plant TS SRs on moderator temperature coefficient (MTC) validate the physics predictions and ensure that plant operations remain within allowable limits. In addition, a direct measurement of MTC is required for the first application of ZrB₂ burnable absorber design in a CE reactor.

The licensee made a commitment to validate the physics predictions and modify plant operation procedures as needed to ensure that plant operations remain within allowable limits. Since Arkansas Nuclear One Unit 2 was the CE lead plant for the use of ZrB₂ burnable absorber and the methodology validation was completed, the licensee concludes that the direct measurement of MTC is not required for Waterford 3.

The NRC staff agrees with the licensee's statement that the direct measurement of MTC is not required for Waterford 3 and concludes that the licensee's commitment complies with Condition 3.

Condition 4 requires that the licensee evaluate cladding hydriding orientation prior to the startup following a Condition III or IV event. The radial hydriding that would occur after a Condition III or IV event results in weakening the cladding integrity. The licensee made a commitment to evaluate the fuel cladding integrity with respect to radial hydriding prior to power ascension. The NRC staff concludes that this commitment complies with Condition 4 and is, therefore, acceptable.

Condition 5 requires that the licensee evaluate the constraints and limitations described in the approved CEN-372-P-A, "Fuel Rod Maximum Allowable Gas Pressure." CEN-372-P-A describes the maximum rod internal pressure permitted under certain restrictions. The licensee made a commitment to ensure that the constraints and limitations of CEN-372-P-A continue to be met.

The NRC staff concludes that this commitment complies with Condition 5 and is, therefore, acceptable.

In addition to demonstrating that the conditions and limitations imposed by the NRC staff on the use of WCAP-16072-P-A have been met, the licensee also evaluated the impact of using this new burnable absorber design on the fuel centerline temperature. TS 2.1.1.2 requires that the peak fuel centerline temperature be maintained less than 5080 °F. Since the ZrB₂ burnable absorber is coated as a thin film onto the outer surface of the uranium dioxide (UO₂) fuel pellets, the ZrB₂ does not impact the UO₂ melting temperature. Thus, the licensee concluded that the ZrB₂ burnable absorber design complies with the TS 2.1.1.2 requirement.

The NRC staff reviewed the information supplied by the licensee and concludes that the ZrB₂ burnable absorber design meets the fuel centerline temperature requirement in TS 2.1.1.2 for Waterford 3.

Based on the above discussion, the NRC staff approves the proposed license amendment to add the approved topical report WCAP-16072-P-A to TS 6.9.1.11, allowing the use of ZrB₂ burnable absorber coating on fuel pellets.

4.0 REGULATORY COMMITMENTS

The licensee will implement the following commitments as contained in Attachment 3 to the October 25, 2005, application:

1. Prior to the use of ZrB₂ burnable absorber coatings, the fuel design will be analyzed with applicable NRC staff approved codes and methods.
2. Plant procedures will be modified as needed to reflect the calculated peak hot full power moderator temperature coefficient along with ZrB₂ Integral Fuel Burnable Absorbers distinctive trend in reactor coolant system critical boron concentration.
3. In the event of a Condition III or IV event at Waterford 3, an evaluation of fuel structural integrity with respect to radial hydriding will be performed prior to power ascension.
4. Analyses as part of the Waterford 3 reload efforts will be performed in support of the generic implementation of ZrB₂ fuel.

The above compensatory measures have been entered as regulatory commitments in the licensee's Commitment Management System, which complies with Nuclear Energy Institute's Document 99-04, Revision 0, "Guidelines for Managing NRC Commitment Changes." The NRC staff has reviewed the compensatory measures and how they will be controlled, and finds that the licensee's commitments provide adequate assurance that the conditions and limitations for the application of WCAP-16072-P-A to individual licensees will be met for Waterford 3.

5.0 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.

6.0 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 published December 6, 2005 (70 FR 72673). 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.

7.0 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: S. Wu

Date: October 6, 2006

Waterford Steam Electric Station, Unit 3

cc:

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

Director
Nuclear Safety Assurance
Entergy Operations, Inc.
17265 River Road
Killona, LA 70066-0751

Wise, Carter, Child & Caraway
P. O. Box 651
Jackson, MS 39205

General Manager Plant Operations
Waterford 3 SES
Entergy Operations, Inc.
17265 River Road
Killona, LA 70066-0751

Licensing Manager
Entergy Operations, Inc.
17265 River Road
Killona, LA 70066-0751

Winston & Strawn LLP
1700 K Street, N.W.
Washington, DC 20006

Resident Inspector/Waterford NPS
P. O. Box 822
Killona, LA 70066-0751

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011

Parish President Council
St. Charles Parish
P. O. Box 302
Hahnville, LA 70057

Executive Vice President
& Chief Operating Officer
Entergy Operations, Inc.
P. O. Box 31995
Jackson, MS 39286-1995

Chairman
Louisiana Public Services Commission
P. O. Box 91154
Baton Rouge, LA 70825-1697

Richard Penrod, Senior Environmental Scientist
State Liaison Officer
Office of Environmental Services
Northwestern State University
Russell Hall, Room 201
Natchitoches, LA 71497

May 2006