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R.A. (Al) Dodds, III
Director, Nuclear Safety Assurance
Waterford 3

W3F1-2005-0003

February 2, 2005

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: Supplement to Amendment Request NPF-38-258,
Modify Technical Specification (TS) 5.3.1, Fuel Assemblies and TS 6.9.1.11.1, Core Operating Limits
Waterford Steam Electric Station, Unit 3
Docket No. 50-382
License No. NPF-38

REFERENCES:
1. Entergy letter to the NRC dated June 20, 2004, "License Amendment Request to Modify Technical Specification (TS) 5.3.1, Fuel Assemblies and TS 6.9.1.11.1, Core Operating Limits" (W3F1-2004-0036)
2. Entergy letter to the NRC dated October 18, 2004, "Supplement to Amendment Request NPF-38-258, Modify Technical Specification (TS) 5.3.1, Fuel Assemblies and TS 6.9.1.11.1, Core Operating Limits" (W3F1-2004-0099)

Dear Sir or Madam:

By letters (References 1 and 2), Entergy Operations, Inc. (Entergy) proposed a change to the Waterford Steam Electric Station, Unit 3 (Waterford 3) Technical Specifications (TSs) to support the cycle 14 core reload.

On November 5, 2004 and December 6, 2004, Entergy and members of your staff held conference calls to further discuss the proposed change. Entergy's response is contained in the attachment to this letter.

A new administrative change to TS 6.9.1.11.1 item 6), "CESEC-Digital Simulation for a Combustion Engineering Nuclear Steam Supply System," is also included.

There are no technical changes proposed. The original no significant hazards consideration included in Reference 1 is not affected by any information contained in the supplemental letter. There are revised commitments contained in this letter.

If you have any questions or require additional information, please contact Dana Millar at 601-368-5445.

A001

I declare under penalty of perjury that the foregoing is true and correct. Executed on February 2, 2005.

Sincerely,

RAD/DM/ssf

Attachments:
1. Response to Request for Additional Information
2. Proposed Technical Specification Changes (mark-up)
3. List of Regulatory Commitments

cc: Dr. Bruce S. Mallett
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011

NRC Senior Resident Inspector
Waterford 3
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Killona, LA 70066-0751

U.S. Nuclear Regulatory Commission
Attn: Mr. Nageswaran Kalyanam MS O-7D1
Washington, DC 20555-0001

Wise, Carter, Child & Caraway
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Washington, DC 20005-3502

Louisiana Department of Environmental Quality
Office of Environmental Compliance
Surveillance Division
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Baton Rouge, LA 70821-4312

American Nuclear Insurers
Attn: Library
Town Center Suite 300S
29th S. Main Street
West Hartford, CT 06107-2445

Attachment 1

To

W3F1-2005-0003

Response to Request for Additional Information

Question 1:

The licensee indicated that if the mFDI and measured oxide thickness from the CE lead plant utilizing ZIRLO™ correlate as expected, then Waterford 3 will no longer restrict the mFDI except as required to meet the 100 oxide limit. Please clarify whether the licensee intends to lift the restriction on fuel duty without the NRC's evaluation of the licensee submittal of the appropriate ZIRLO corrosion data from CE fuel design.

Response 1:

Entergy will not lift the ZIRLO™ modified Fuel Duty Index (mFDI) restriction without either NRC approval of a supplement to CENPD 404-P-A that includes corrosion data from two Combustion Engineering plants (not at the same plant site) or NRC approval of Waterford Steam Electric Station, Unit 3 (Waterford 3) site specific corrosion data.

By letter dated June 20, 2004 (W3F1-2004-0036), Entergy stated that the maximum mFDI based on actual 16 X 16 Combustion Engineering designed fuel is 590. This value was based on information from Palo Verde and did not consider Waterford 3 plant specific considerations. The calculated Waterford 3 plant specific mFDI is 570. To provide adequate margin to account for variations in core design, Entergy will restrict the mFDI for each ZIRLO™ clad fuel pin to 110% of the established Waterford 3 plant specific mFDI limit of 570 (i.e., 627). For a fraction of ZIRLO™ clad fuel pins in a limited number of fuel assemblies (no more than eight fuel assemblies), the fuel duty will be restricted to 120% of the Waterford 3 plant specific mFDI limit of 570 (i.e., 684). The basis for the 110% and 120% multiplier was supplied by letter to the NRC dated October 18, 2004 (W3F1-2004-0099).

The basis for the mFDI limit of 570 for Waterford 3 is that the ZIRLO™ fuel rod cladding would be allowed to operate within the current (OPTIN™) fuel rod cladding operational limits (of less than 100 microns best estimate maximum oxide thickness and with no more than minor spallation). A survey of actual Waterford 3 reactor cycles resulted in selection of a particular set of cycles resulting in relatively adverse corrosion performance for identifying the ZIRLO™ mFDI experience limit of 570. The calculation to derive the mFDI experience limit was based on an actual multiple cycle fuel management for the Waterford 3 plant, but modified analytically to push the current (OPTIN™) fuel rod cladding beyond its expected performance for the fuel management, but not beyond the current cladding's operational limits. This was accomplished with an increase in power level to the new uprate power level for two consecutive cycles along with an increase in the reactor coolant temperature and decrease in vessel flow rate, both in an adverse direction for fuel rod corrosion but within the current Technical Specification limits.

Proposed Change

The proposed change corrects the title of the analytical method referenced in Technical Specification (TS) 6.9.1.11.1 item 6. The phrase "CENPD-107" will be removed. "CENPD-107" is a Topical Report that supports CESEC-I and CESEC-II. The approved analytical method used at Waterford 3 is CESEC-III, which is titled, "CESEC – Digital Simulation for a Combustion Engineering Nuclear Steam Supply System." CESEC-III was approved for Waterford 3 in the NRC Safety Evaluation Report (TAC No.:01142). Waterford 3 inappropriately included "CENPD-107" in a requested change to the TSs (Waterford 3 letter to the NRC dated August

11, 1994 and supplemented December 2, 1994), NRC approval of which is reflected in TS amendment number 102. The proposed change is an administrative change and as such no changes are needed to the No Significant Hazards Analysis that was submitted in support of the license amendment request to modify TS 5.3.1, Fuel Assemblies and TS 6.9.1.11.1, Core Operating Limits (Entergy letter to the NRC dated June 20, 2004, W3F1-2004-0036). A markup of page 6-20a is included in Attachment 2 to this letter. No changes are proposed to any of the other marked up TS pages or to the inserts included in the original submittal dated June 20, 2004.

Attachment 2

To

W3F1-2005-0003

Proposed Technical Specification Changes (mark-up)

ADMINISTRATIVE CONTROLS

CORE OPERATING LIMITS REPORT COLR (Continued)

6) "CESEC - Digital Simulation for a Combustion Engineering Nuclear Steam Supply System," CENPD-107 (Methodology for Specification 3.1.1.1 and 3.1.1.2 for Shutdown Margins, 3.1.1.3 for MTC, 3.1.3.1 for Movable Control Assemblies - CEA Position, 3.1.3.6 for Regulating and group P CEA Insertion Limits, and 3.2.3 for Azimuthal Power Tilt).

7) "Qualification of Reactor Physics Methods for the Pressurized Water Reactors of the Entergy System," ENEAD-01-P. (Methodology for Specifications 3.1.1.1 and 3.1.1.2 for Shutdown Margins, 3.1.1.3 for MTC, 3.1.3.6 for Regulating and group P CEA Insertion Limits, 3.1.2.9 Boron Dilution (Calculation of CBC & IBW), and 3.9.1 Boron Concentration).

8) "Fuel Rod Maximum Allowable Gas Pressure," CEN-372-P-A. (Methodology for Specification 3.2.1, Linear Heat Rate).

INSERT 2

6.9.1.11.2 The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis are met.

6.9.1.11.3 The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements thereto, shall be provided upon issuance, for each reload cycle, to the NRC Document Control Desk with copies to the Regional Administrator and Resident Inspector.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted in accordance with 10 CFR 50.4 within the time period specified for each report.

6.10 Not Used

Attachment 3

To

W3F1-2005-0003

List of Regulatory Commitments

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
The nominal value of 1830 grams of uranium for each fuel rod will be added to the FSAR.	x		Per 10CFR50.71(e)
Prior to the use of lead test assemblies (LTAs), fuel designs will be analyzed with applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases and to assure no new or different kind of accident from any accident previously evaluated will be created.		Prior to incorporating LTAs in the core and while LTAs are in the core.	
The maximum allowable corrosion limit of 100 microns will be added to the Waterford 3 FSAR.		Prior to the use of ZIRLO™ cladding.	
The corrosion thickness will be calculated using the best estimate models and methods described in topical report CENPD-404-P.		Prior to the use of ZIRLO™ and each core reload that contains ZIRLO™ fuel cladding material.	
ZIRLO™ data ranges for the methodologies in which they are used will be verified during the reload/core design process that is employed for use of methodologies.		Prior to the use of ZIRLO™ and each core reload that contains ZIRLO™ fuel cladding material.	
The upper design limits for Waterford 3 fuel will be limited to mFDI values of 627 for the majority of the fuel assemblies and 684 for a fraction of fuel pins in a limited number of assemblies (no more than eight fuel assemblies).		X	
Entergy will not lift the modified Fuel Duty Index (mFDI) restriction without either NRC approval of a supplement to CENPD 404-P-A that includes corrosion data from two Combustion Engineering plants (not at the same plant site) or NRC approval of Waterford Steam Electric Station, Unit 3 (Waterford 3) site specific corrosion data.		X	