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Waterford 3

W3F1-2000-0133  
A4.05  
PR

October 6, 2000

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Subject: Waterford 3 SES  
Docket No. 50-382  
License No. NPF-38  
Issuance of Amendment No. 165  
Reduction in Operable Containment Fan Coolers in  
the Containment Cooling System (TAC No. MA6997)

Gentlemen:

In a letter dated July 6, 2000, the NRC Staff issued Amendment No. 165 to Facility Operating License No. NPF-38 for the Waterford Steam Electric Station, Unit 3 (Waterford 3). In our October 18, 1999, submittal requesting the amendment, Waterford 3 described the use of a graded approach to instrument uncertainty as a basis for the acceptability of the request. We have carefully reviewed the license amendment. Entergy Operations, Inc. (Entergy) interprets the language in the associated Safety Evaluation to mean that the NRC Staff has determined that the analysis and parameters contained in the October 18, 1999, submittal contain acceptable methods and level of conservatism and form the Waterford 3 licensing basis for the peak containment pressure and temperature due to a Loss of Coolant Accident (LOCA) and Main Steam Line Break (MSLB) analysis. While we accept and appreciate your granting of the subject amendment, Entergy respectfully disagrees with (1) the NRC Staff's statement that a graded approach to instrument uncertainty is new and (2) the inference that a graded approach is not within the Waterford 3 licensing basis. A more detailed discussion of our exceptions to the NRC Staff's statements regarding instrument uncertainty is contained in Attachment 1. In addition, a position statement with respect to Amendment 165 is contained in Attachment 2.

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Entergy recognizes that safety analyses or procedures must account for instrument uncertainties in all cases. However, the level of rigor applied to documenting the instrument uncertainty and the associated accounting in the applicable analyses and procedures may vary based on the safety significance of the instrument function as determined by the relative magnitude of the uncertainty compared to the available margin. The graded approach is consistent with the Waterford 3 licensing basis, NRC Staff guidance, and applicable regulations. Entergy's position on this matter was stated in a December 2, 1999, meeting with NRC Staff at NRC headquarters and during a February 22, 2000, meeting at the NRC Region IV offices.

Moreover, the same Entergy position was stated and considered during the NRC Staff inspection which took place from February 28 - March 3, 2000, (see March 30, 2000, letter from Dr. Dale A Powers, USNRC to Charles M. Dugger, Vice-President Operations – Waterford 3). During each of these events Entergy reiterated to the NRC Staff its position that the use of a graded approach for documenting and accounting for instrument uncertainty is part of the Waterford 3 licensing basis. Thus the ongoing application of this methodology at Waterford 3 is not "new." We believed, through subsequent discussions with the NRC Staff, that this position was understood.

Entergy respectfully requests the NRC Staff to revise the Safety Evaluation issued for Amendment No. 165 to Facility Operating License No. NPF-38 to accurately reflect the Waterford 3 licensing basis relative to the graded approach for documenting and accounting for instrument uncertainty as contained in the October 18, 1999 submittal. Entergy is willing to meet with the NRC Staff to further discuss this matter. Analysis results with explicit uncertainties included were intended to confirm our position that the graded approach was appropriate and were not intended to be established as Waterford 3's licensing basis.

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All of the commitments contained in this submittal are identified on the attached Commitment Identification/Voluntary Enhancement Form. Should you have any questions or comments concerning this correspondence, please contact Everett Perkins at (504) 739-6379.

Very truly yours,

A handwritten signature in black ink, appearing to read 'C.M. Dugger', with a long horizontal flourish extending to the right.

C.M. Dugger  
Vice President, Operations  
Waterford 3

CMD/EPP/rtk

- Attachment 1: Entergy Review of NRC Staff Comments with Regard to  
Amendment No. 165 to Facility Operating License No. NPF-38
- Attachment 2: Entergy Position Regarding License Amendment No. 165 to Facility  
Operating License No. NPF-38
- Attachment 3: Commitment Identification/Voluntary Enhancement Form
- cc: E.W. Merschoff, NRC Region IV  
N. Kalyanam, NRC-NRR  
J. Smith  
N.S. Reynolds  
NRC Resident Inspectors Office  
American Nuclear Insurers

**ATTACHMENT 1**  
to W3F1-2000-0133

Entergy Review of NRC Staff Comments  
with Regard to Amendment No. 165  
to Facility Operating License No. NPF-38

## ISSUE 1

**Statement:** The NRC Staff states in its cover letter:

The calculations performed, in which measurement uncertainties were included, show that containment pressure and temperature limits are satisfied for both the loss of coolant accident and main steam line break accident, and these calculations are the basis for the staff's approval of this specific license amendment. The staff has not, however, made a final determination of the acceptability of this approach on a generic basis.

**Response:** The issue here is one of clarification. These statements are inconsistent with the text of the safety evaluation. The statement as worded seems to imply that the NRC Staff has not "made a final determination of the acceptability" of including measurement uncertainties in the calculations. Based on statements in the safety evaluation text (see page 7), it is apparent that the NRC Staff has not accepted, on a generic basis, the Waterford 3 graded approach to the treatment of uncertainties.

## ISSUE 2

**Statement:** The NRC Staff states on page 2 of the Safety Evaluation Report (SER) that Waterford 3 "included a new method of treating measurement uncertainties" in the license amendment request (LAR).

**Response:** Entergy respectfully disagrees with the NRC Staff statement that the LAR included a "new" method of calculating instrument uncertainties. The methodologies used by Entergy to determine the instrument uncertainties are consistent with the guidance provided in ISA S67.04, "Setpoints for Nuclear Safety-Related Instrumentation." As the NRC Staff was made aware during several meetings with Waterford 3 personnel and during a recent Waterford 3 inspection, plant procedures utilize a graded approach to establish the level of rigor applied to documenting the instrument uncertainty and the associated accounting in the applicable analyses and procedures. This graded approach is based on the safety significance of the instrument function and is consistent with industry guidance. This type of graded approach to instrument uncertainty is explicitly endorsed in Regulatory Guide 1.105, Revision 3, "Setpoints For Safety-Related Instrumentation" and Branch Technical Position HICB-12, "Guidance on Establishing and Maintaining Instrument Setpoints."

More specifically, Entergy discussed the use of a graded approach at Waterford with the NRC Staff during the December 2, 1999, meeting at NRC Headquarters and during a February 22, 2000, meeting at the NRC Region IV offices. The same Entergy position was stated and considered during the NRC Staff inspection which took place from February 28, 2000 through March 3, 2000 (see March 30, 2000 letter from Dr. Dale A. Powers, USNRC to Charles M. Dugger, Vice-President Operations – Waterford 3). During each of these events, Entergy reaffirmed its position that use of a graded approach that allows a less-rigorous method for documenting and accounting for instrument uncertainty based on the safety significance of the instrument function is consistent with Waterford 3's licensing basis. While these communications may not have reached all potential reviewers and inspectors, the Waterford 3 graded approach is not "new."

### **ISSUE 3**

**Statement:** The NRC Staff states on SER page 7 that the method "proposed" by Waterford 3 for documenting and accounting for instrument uncertainties "is combining a design basis analysis with a risk-based success criterion."

**Response:** The NRC Staff statement is correct. In applying the graded approach, Waterford 3 strives to use all available information to determine the safety significance of the instrument function. This includes assessing the deterministic requirements, the impact on risk, and other specific design information. Entergy believes that this is consistent with the NRC Staff expectations to provide a comprehensive evaluation. Entergy does not find fault with this approach considering that it is consistent with recent regulatory trends in risk-informed regulation. Entergy (Waterford 3) did assess the impact of instrument uncertainty on containment integrity during an accident using a risk-informed method. This assessment concluded that the instrument uncertainty in the identified parameters was not safety significant. This result confirmed that the graded approach used by Waterford 3 appropriately classified the instrument uncertainties in the limiting analysis as having negligible impact on the containment safety function.

#### **ISSUE 4**

**Statement:** The NRC Staff states in its cover letter and on SER page 7 that Waterford 3 “should discuss with the staff the appropriate forum for pursuing the use of graded uncertainties.”

**Response:** Entergy interprets this statement to refer to our graded approach to addressing instrument uncertainty. We believe uncertainties must always be considered. However, the level of rigor used to document and account for instrument uncertainty is dependent on the safety significance of the instrument function. As discussed above, Entergy’s position on this matter was stated in the December 2, 1999, meeting at NRC headquarters and during the February 22, 2000, meeting at the NRC Region IV offices. The same position was stated and considered during the NRC Staff inspection which took place from February 28 - March 3, 2000, (see March 30, 2000, letter from Dr. Dale A. Powers, USNRC to Charles M. Dugger, Vice-President Operations – Waterford 3). During each of these events, Entergy reaffirmed to the NRC Staff its position that use of a graded approach that allows less-rigorous methods based on safety significance of the instrument function is consistent with the Waterford 3 licensing basis. Entergy believes these interactions were appropriate for resolving the matter with the NRC Staff.

**ATTACHMENT 2**  
to W3F1-2000-0133

Entergy's Position Regarding License Amendment No. 165  
to Facility Operating License No. NPF-38

### **Entergy's Position Regarding License Amendment No. 165**

The following is Entergy's position regarding Licensing Amendment No. 165 and the Waterford 3 licensing basis. The license amendment modified Technical Specification (TS) 3.6.2.2 Limiting Condition for Operation to allow Waterford 3 to operate with two independent trains of containment cooling, consisting of one cooler per train, operable during Modes 1, 2, 3, and 4. Entergy submitted to the NRC Staff the basis for these changes in letters dated October 18, 1999, May 16, 2000, and June 1, 2000. The following were the major elements of our basis for requesting the license amendment:

- Only one containment cooling fan is required for the OPERABILITY of either train of containment cooling,
- The computer code used to demonstrate acceptable safety analyses results was the GOTHIC code, and
- Instrument uncertainties were treated using the "graded approach" which is consistent with the licensing bases of Waterford 3.

Entergy's original application, (October 18, 1999), relied on the graded approach for accounting for instrument uncertainty when determining the input values. Entergy provided analysis results that included explicit treatment of instrument uncertainties for information purposes. The intent for providing the impact of instrument uncertainty on the analytical results was to demonstrate the low safety significance of the instrument function and basis for determining that a less-rigorous setpoint determination method was appropriate.

In the Safety Evaluation accompanying License Amendment No. 165, the NRC Staff stated:

- (Page 4) "The CONTEMPT computer code is the licensee's original and current licensing basis code."
- (Page 7) "the calculations performed in which measurement uncertainties were included, show that containment pressure and temperature limits are satisfied for both the LOCA and MSLB accident" additionally "These calculations are the basis for the staff's approval of this license amendment."

It is the position of Entergy that the analyses performed to support License Amendment No. 165 define the new licensing basis for peak containment pressure and temperature for Waterford 3. This includes the use of the GOTHIC computer

code. Instrument uncertainties are treated in a less-rigorous manner consistent with the Waterford 3 “graded approach.”

The supplemental analyses that explicitly included instrument uncertainties in the analysis were provided to the NRC Staff clarifying that the impact of uncertainties on the containment peak pressure and temperature results is small. These analyses simply demonstrate the low safety significance of instrument uncertainty on the containment safety function and confirm the basis that a less-rigorous treatment of uncertainties is appropriate.

Entergy intends to update the UFSAR to document the current licensing basis of Waterford 3 in light of License Amendment No. 165 and the above outlined discussion.

**COMMITMENT IDENTIFICATION/VOLUNTARY ENHANCEMENT FORM**

Attachment 3 to W3F1-2000-0133  
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COMMITMENT(S)	ONE-TIME ACTION*	CONTINUING COMPLIANCE*	SCHEDULED COMPLETION DATE (IF REQUIRED)	ASSOCIATED CR OR ER

\*Check one only

VOLUNTARY ENHANCEMENT(S)	ASSOCIATED CR OR ER
Entergy intends to update the UFSAR to document the current licensing basis of Waterford 3 in light of License Amendment No. 165 and the above outlined discussion.	