Entergy

Entergy Nuclear South
Entergy Operations, Inc.
17265 River Road
Killona, LA 70057
Tel 504-739-6310
Fax 504-739-6698
tmitch1@entergy.com

Timothy G. Mitchell
Director, Engineering
Waterford 3

W3F1-2005-0032

April 27, 2005

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

SUBJECT: License Amendment Request NPF-38-249-1
Extended Power Uprate (Amendment 199) License Condition Regarding Instrument Uncertainty
Waterford Steam Electric Station, Unit 3
Docket No. 50-382
License No. NPF-38

REFERENCES: 1. NRC letter to Mr. Joseph E. Venable dated April 15, 2005, "Waterford Steam Electric Station, Unit 3 – Issuance of Amendment Re: Extended Power Uprate (TAC No. MC1355)

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Operations, Inc. (Entergy) hereby requests that the NRC staff review and approve the attached information submitted in accordance with Reference 1. Upon approval of the attached information, Entergy requests that the NRC staff consider the license condition regarding instrument uncertainty, that was imposed on the Waterford Steam Electric Station, Unit 3 (Waterford 3) license in Reference 1, to be complete and remove it from the Waterford 3 license.

Reference 1 approved the Extended Power Uprate (EPU) for Waterford 3 and, as part of the approval, imposed the following license condition:

3. *As stated in the licensee's letter dated February 5, 2005, the licensee committed as follows: "Prior to exceeding 3441 MWt, Entergy will submit, for NRC review and approval, a description of how Entergy accounts for instrument uncertainty for each Technical Specification parameter impacted by the Waterford 3 Extended Power Uprate." Accordingly, subject to completion of this condition, the licensee shall not operate the Waterford 3 facility at a power level exceeding 3441 MWt.*

A description of how Entergy, upon implementation of this amendment request, will account for instrument uncertainty for Technical Specification parameters impacted by the Waterford 3 EPU is provided in Attachment 1 for NRC staff review and approval in accordance with the

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license condition. Following NRC staff review and approval of the information contained in Attachment 1 the condition set forth in the EPU amendment will be complete.

The information has been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c) and it has been determined that the removal of the license condition involves no significant hazards consideration. The bases for these determinations are included in the attached submittal.

The proposed change does not include any new commitments.

Waterford 3 can not exceed 3441 MWt and achieve the EPU power level of 3716 MWt following the Spring 2005 refueling outage until the license condition imposed in Reference 1 is considered to be complete. The need for a license amendment for this purpose was not recognized by Entergy or the NRC staff until just prior to the issuance of the EPU license. Therefore, to avoid a derating of Waterford 3 following restart from the Spring 2005 refueling outage, Entergy requests that this license amendment request be reviewed and approved on an exigent basis.

Entergy requests approval of the proposed amendment by May 27, 2005, to support power ascension from the Spring 2005 refueling outage. Once approved, the amendment shall be implemented within 60 days after exceeding 3441 MWt. The 60 day implementation period is needed to complete the necessary procedure changes and operator training.

If you have any questions or require additional information, please contact D. Bryan Miller at 504-739-6692.

I declare under penalty of perjury that the foregoing is true and correct. Executed on April 27, 2005.

Sincerely,

TGM/DBM/cbh

Attachments:
1. Proposed License Amendment Request

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
P.O. Box 822
Killona, LA 70066-0751

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

Wise, Carter, Child & Caraway
Attn: J. Smith
P.O. Box 651
Jackson, MS 39205

Winston & Strawn
Attn: N.S. Reynolds
1700 K Street, NW
Washington, DC 20006-3817

Louisiana Department of Environmental Quality
Office of Environmental Compliance
Surveillance Division
P. O. Box 4312
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

W3F1-2005-0032

Proposed License Amendment Request

1.0 DESCRIPTION

This letter provides, for NRC staff review and approval, the information required by the license condition regarding instrument uncertainty that was imposed on Waterford 3 with the approval and issuance of the Extended Power Uprate (EPU) amendment (i.e., Amendment 199) and is a request to amend Operating License(s) NPF-38 for Waterford Steam Electric Station, Unit 3 (Waterford 3), to remove the license condition. The completion of the license condition will allow Waterford 3 to exceed 3441 MWt and achieve the EPU power level of 3716 MWt.

2.0 PROPOSED CHANGE

Review and approve the information below regarding instrument uncertainty and remove the license condition regarding instrument uncertainty that was imposed on Waterford 3 with the approval and issuance of the EPU amendment.

3.0 BACKGROUND

The amendment approving the EPU for Waterford 3 imposed the following license condition:

3. *As stated in the licensee's letter dated February 5, 2005, the licensee committed as follows: "Prior to exceeding 3441 MWt, Entergy will submit, for NRC review and approval, a description of how Entergy accounts for instrument uncertainty for each Technical Specification parameter impacted by the Waterford 3 Extended Power Uprate." Accordingly, subject to completion of this condition, the licensee shall not operate the Waterford 3 facility at a power level exceeding 3441 MWt.*

A description of how Entergy Operations, Inc. (Entergy) will account for instrument uncertainty for Technical Specification parameters impacted by the Waterford 3 EPU is provided below for NRC staff review and approval in accordance with the license condition. Following NRC staff review and approval of the information below, the condition set forth in the EPU amendment will be complete.

4.0 TECHNICAL ANALYSIS

In accordance with the license condition, Entergy is documenting the treatment of instrument measurement uncertainty for parameters which were revised in association with EPU or pertinent to EPU analyses that fall within the following criteria:

- The parameter is a value which is measured using plant equipment. That is, the parameter is directly indicated to operators using installed plant instrumentation.

  and

- The parameter is a value which is specified by a Limiting Condition for Operation (LCO) of the Waterford 3 Technical Specifications. Parameters listed in Technical Specification Tables which are called out by LCO's are considered within the scope of this effort.

When an LCO refers to values specified in the Core Operating Limits Report (COLR), such values would also be considered within the scope of this effort.

The criteria consider parameters which are pertinent to power uprate analyses, even if the value of the parameter is unchanged for EPU. That is, the parameter is considered if of at least moderate importance for analyses pertinent to the parameter (e.g., analyses discussed in Bases of Technical Specifications (TS)) which had to be reperformed to support EPU. The criteria would capture parameters for which margins to acceptance criteria for analyses discussed in the Bases of applicable Technical Specifications have been impacted for EPU.

The parameter selection was discussed with the NRC staff during a conference call on 14 April 2005. The NRC staff concurred with the list of parameters provided by Waterford 3, with the proviso (agreed to by Entergy) that Containment Spray Riser Level (TS 4.6.2.1) also be included.

Values relating to applicability (e.g., MODES) of the Technical Specifications are considered to be generally out of the scope of the license condition. For example, Technical Specifications 3.2.1 through 3.2.4 for power distribution parameters (Linear Heat Rate, Planar Radial Peaking, Azimuthal Power Tilt, and Departure from Nucleate Boiling Ration (DNBR) margin) are designated as applicable above 20% of Rated Thermal Power (RTP). The Entergy license condition scope will not include discussion of instrument uncertainties with respect to that 20% power criteria.

Entergy recognizes that instrument uncertainty must be account for in all cases. Since the intent of many Technical Specifications is to provide assurance that the plant is within the assumptions of the accident analysis, it is appropriate that the instrument measurement uncertainties be accounted for in some manner. Except for Limiting Safety System Setting (LSSS) setpoint values, there is no regulatory guidance describing specific methods that must be employed to address the instrument uncertainties associated with Technical Specification parameters.

Parameters can be categorized into one of four categories regarding treatment of instrumentation uncertainty:

Category	Description
A	Instrument Uncertainty is explicitly considered in analyses. There is an explicit offset between the Technical Specification value and the value assumed in the analyses pertinent to the Technical Specification.
B	Instrument Uncertainty is explicitly considered in plant procedures. There is an explicit offset between the LCO value in the Technical Specification and the value specified to be maintained by plant procedures.
C	The LCO value may also be the value assumed as initial conditions in safety analyses and the value specified to be maintained by plant procedures.
D	The Technical Specification value and the plant procedure limit are the same and the parameter does not have an explicit analytical basis. The limited numbers of parameters in this category are based on engineering judgment.

Waterford 3 has performed a categorization of Technical Specification parameters within the scope of the license condition. This categorization, shown in the table below, also reflects discussions with the NRC staff on April 14, 15, and 22, 2005.

Consistent with the Waterford 3 licensing basis and HICB-12, Entergy is explicitly applying offsets for instrument uncertainty in the analysis and/or procedures for the Technical Specification parameters impacted by the Waterford 3 Extended Power Uprate as listed below. Because an explicit offset for instrument uncertainty is being applied, none of the parameters fall into Category C.

The listing of pertinent parameters within the scope of this license condition and their categorization is provided below.

Category +	TS Section	Description	TS Value
A	1.24	Rated Thermal Power	3716 MW
A	2.2	Table 2.2-1: Linear Power Level-High	108% RTP
A	2.2	Table 2.2-1: Logarithmic Power Level-High	0.257% RTP
A	2.2	Table 2.2-1: Pressurizer Pressure - High	2350 psia
A	2.2	Table 2.2-1: Pressurizer Pressure - Low	1684 psia
A	2.2	Table 2.2-1: Containment Pressure - High	17.1 psia
A	2.2	Table 2.2-1: Steam Generator Pressure - Low	666 psia
A	2.2	Table 2.2-1: Steam Generator Level - Low	27.4% Wide Range
A	2.2	Table 2.2-1: Steam Generator Level - High	87.7% Wide Range
A	2.2	Table 2.2-1: Reactor Coolant Flow - Low	19.00 psid
B	3.1.1.4	Minimum T_{Cold} for Criticality	520°F
A	3.1.2.2	Boric Acid Makeup Tank (BAMT) Volume	TS Figures 3.1-1 and 3.1-2
A	3.1.2.8.a	Minimum BAMT Volume -- MODES 1,2,3,4	TS Figures 3.1-1 and 3.1-2
A	3.1.3.1	7" limit for Control Element Assembly (CEA) position with respect to rest of Group	7" (indicated position)

Category +	TS Section	Description	TS Value
A #	3.1.3.1 ACTIONS b, c, & d	CEA Misalignment criteria for ACTIONS b, c, & d	19" (indicated position)
A #	3.1.3.1 ACTION f	CEA Insertion criteria for ACTION f	145"
A #	3.1.3.5	145" Shutdown CEA Insertion Limit	145"
A #	3.1.3.6	CEA Regulating and Group P Insertion Limits	COLR Figures 4 & 5
D	3.2.3 ACTIONS b.2 and b.3	Reduced Thermal Power requirements and Reduced Linear Power Level - High trip setpoints	50% RTP 55% RTP (setpoint)
D	3.2.3 ACTION b.3	≥95% Rated Thermal Power for verifying Azimuthal Tilt	95% RTP
B	3.2.5	Reactor Coolant System (RCS) Flow Rate	148 Million lbm/hr
A	3.2.6	Tcold	≥536°F and ≤549°F
D	3.2.6 *	Tcold	≤559°F
A	3.2.8	Pressurizer Pressure	≥2125 psia and ≤2275 psia
A	3.3.1	Table 3.3-1 Applicability of Logarithmic Power Level-High trip (and NOTES)	10^{-4}% RTP
A	3.3.1	Table 3.3-1 Note (a) Logarithmic Power Level-High trip bypass reset	$3x10^{-5}$% RTP
A	3.3.2	Table 3.3-4: Containment Pressure - High	17.1 psia
A	3.3.2	Table 3.3-4: Pressurizer Pressure - Low	1684 psia
A	3.3.2	Table 3.3-4: Containment Pressure - High-High	17.7 psia
A	3.3.2	Table 3.3-4: Steam Generator Pressure - Low	666 psia
A	3.3.2	Table 3.3-4: Steam Generator delta P - High	123 psid

Category +	TS Section	Description	TS Value
A	3.3.2	Table 3.3-4: Emergency Feedwater Control Valve Logic	36.3% Wide Range
A	3.3.3.1	Table 3.3-6: Control Room Intake Monitor setpoint	5.45×10^{-6} µCi/cc
A	3.4.3.1.a	Pressurizer indicated level	≥26% and ≤62.5%
B	3.5.1.b	Safety Injection Tank (SIT) volume	≥40% and ≤77.8%
B	3.5.1 *	SIT volume mode applicability: 4 tanks operable below 1750 psia.	≥39% and ≤77.8%
B	3.5.1 *	SIT volume mode applicability: 3 tanks operable below 1750 psia	≥61% and ≤77.8%
A	3.5.1.d	SIT pressure	≥600 psig and ≤670 psig
A	3.5.4.a	Reactor Water Storage Pool (RWSP) volume	83%
B	3.5.4.c	RWSP Maximum Temperature	100°F
A	3.5.4.c	RWSP Minimum Temperature	55°F
A	3.6.1.4	Containment Minimum Pressure	14.275 psia
B	3.6.1.4	Containment Maximum Pressure	27" w.g.
B	3.6.1.5	Containment Maximum Temperature	120°F
B	3.6.1.5	Containment Minimum Temperature	90°F
B	4.6.2.1a	Containment Spray Riser Level	149.5 ft MSL
B	3.6.6.2	Annulus negative Pressure	5" w.g.
A	3.7.1.1	Table 3.7-2 allowed reactor power with Main Steam Safety Valve's (MSSV's) Out-of-Service	85.3% RTP 66.7% RTP
A	3.7.1.3	Condensate Storage Pool (CSP) volume	92% indicated level
B	3.7.1.3	CSP Maximum Temperature	100°F
A	3.7.1.3	CSP Minimum Temperature	55°F

Category +	TS Section	Description	TS Value
D	3.7.1.7	Atmospheric Dump Valve (ADV) (automatic control)	70% RTP
A	3.7.4.a	Ultimate Heat Sink Wet Cooling Tower (WCT) basin level	97%
B	3.7.4.b	Ultimate Heat Sink WCT Average Basin temp	89°F
A	3.7.4.c	Table 3.7-3: # Fans Required based on Wet Bulb and Dry Bulb temperatures.	Dry Bulb: 91°F & 98°F Wet Bulb: 75°F & 70°F
B	3.8.1.1	Diesel Fuel Oil Storage Tank Level	39,300 gal 37,000 gal for 5 days
B	3.8.1.1	Diesel Fuel Oil Feed Tank Level	339 gallons
B	3.8.1.2	Diesel Fuel Oil Storage Tank Level	39,300 gal 37,000 gal for 5 days
B	3.8.1.2	Diesel Fuel Oil Feed Tank Level	339 gallons
B	3.9.10.1, 3.9.10.2, 3.9.11	23 feet water over irradiated fuel (over vessel flange when moving fuel)	23 ft

+ Future analysis may result in the recategorization of these Technical Specification parameters (i.e., A to B or B to A).

The explicit offset for uncertainty is applied to CEA worth which is directly related to CEA indicated position. Additional discussion is provided below regarding these parameters.

* Parameter is in footnote of Technical Specification.

4.1 CEA Misalignment Criteria (19")
Technical Specification 3.1.3.1 ACTIONs b, c and d:

These parameters are considered Category A, but merit discussion because the treatment of instrument uncertainty is explicitly built into the rod worth reactivity uncertainties which are then applied to indicated CEA position. The Waterford 3 treatment of this parameter is consistent with that of other Combustion Engineering nuclear steam supply systems plants.

Technical Specification 3.1.3.1 ACTION b addresses more than one CEA trippable but misaligned from any other CEA in its group by more than 19 inches (indicated position); ACTION c addresses the condition of one CEA trippable but misaligned from any other CEA in its group by more than 19 inches; ACTION d addresses the condition of one or more CEA's trippable but misaligned from any other CEAs in its group by between the 3.1.3.1 LCO value of 7 inches (indicated position) and 19 inches. While these values are not being changed by EPU, this is considered a pertinent parameter for EPU due to potential changes in reactivity and rod worths for EPU core designs.

19 inches defines the difference between a large and small CEA misalignment. Per TS Bases, for small misalignments (less than 19 inches) of the CEA's, there is (1) a small effect on the time dependent long-term power distribution relative to those used in generating LCO and LSSS setpoints, (2) a small effect on the available Shutdown Margin, and (3) a small effect on the ejected CEA worth used in the safety analyses.

As discussed in FSAR Section 7.5.1.6 and 3.9.4.1.1.4, two diverse independent CEA position indication systems provide CEA position indication to the operator. The Pulse Counting CEA Position Indication System infers each CEA position by maintaining a record of the "raise" and "lower" control pulses sent to each magnetic jack control element drive mechanism (CEDM). The Reed Switch Position Indication System uses a series of magnetically actuated reed switches to provide signals representing CEA position. Two independent reed switch position transmitters are provided for each CEA. The position indication system uses a series of magnetically actuated reed switches spaced at 1.5 inch intervals along the assembly and arranged with precision resistors in a voltage divider network. CEA position information based on the reed switch information, including CEA deviation information, is provided to the Core Protection Calculators and to the Control Element Assembly Calculators.

The impact of CEA misalignments on power distribution is explicitly accounted for by the Core Protection Calculator and supporting analysis. As discussed in TS Bases, the Core Protection Calculator System provides protection to the core in the event of a large misalignment of a CEA by applying appropriate penalty factors to the calculation to account for the misaligned CEA. With one or both Control Element Assembly Calculators operable, this increased penalty factor is applied whenever the CEA has an outward deviation of approximately 9.5 inches or greater; supporting analysis has explicitly considered uncertainties in determining this value. Inward CEA position deviations are bounded by the CEA Misoperation (CEA Drop) analysis of FSAR Section 15.4.1.4 which conservatively assumes that the CEA is dropped from an initial full out position to a final full in position; the analysis of this event for 3716 MWt EPU conditions was presented in Section 2.13.4.1.4 of the EPU report, letter W3F1-2003-0074. Figure 3 of the COLR, which does not require revision for EPU, provides the required power reduction after a CEA drop event. This 19 inch value was also the value specified in NUREG-0212, Standard Technical Specifications for Combustion Engineering Pressurized Water Reactors, and in

NUREG-1432, improved Standard Technical Specifications for Combustion Engineering Pressurized Water Reactors.

The impact of CEA misalignments on shutdown margin and ejected CEA worth is accounted for in the safety analysis through the conservative application of CEA worth uncertainties. As discussed in Section 4.2, instrument uncertainty associated with this parameter is included in the core physics inputs to safety analysis; because the uncertainty in rod position is incorporated into the rod worth values, instrument uncertainty is accommodated within the analytical basis for the 19 inch parameter. Thus, it is not necessary to apply any additional explicit allowance for CEA position instrument uncertainty to this parameter in plant procedures since rod worth uncertainties are explicitly applied in the analysis.

4.2 CEA Insertion Limits (145" and COLR Figures 4 & 5)
Technical Specification 3.1.3.1 ACTION f
Technical Specification 3.1.3.5
Technical Specification 3.1.3.6

Several Technical Specifications provide limits on group CEA positions or involve ACTIONS which are dependent on CEA positions. These parameters are considered Category A, but merit discussion because the treatment of instrument uncertainty is explicitly built into the rod worth reactivity uncertainties which are then applied to indicated CEA position.

Technical Specification 3.1.3.1.f for a trippable but inoperable CEA within its alignment limits allows operation to continue if the rod is greater than or equal to 145 inches withdrawn or if it is within the Long Term Steady State Insertion Limits if in CEA group 6 or group P. The LCO for Technical Specification 3.1.3.5 requires that all shutdown CEA's be withdrawn to greater than or equal to 145 inches. Figures 4 and 5 of the COLR provide the insertion limits required by the LCO of Technical Specification 3.1.3.6, presenting limits on reactor power as a function of CEA group position in inches.

While none of these values, including COLR Figures 4 and 5, are being changed for EPU, these parameters are considered pertinent to EPU due to the potential changes in reactivity characteristics associated with EPU.

As discussed in Technical Specification Bases, the insertion limits of TS 3.1.3.5 and 3.1.3.6 ensure that (1) the minimum Shutdown Margin is maintained and (2) the potential effects of a CEA ejection accident are limited to acceptable levels. Small CEA misalignments would only have small effects on the time dependent long-term power distributions, on shutdown margin, and on CEA worths assumed for the CEA Ejection analyses.

Westinghouse procedures for calculating core physics inputs to safety analyses require the application of uncertainty factors to these inputs. The uncertainty factors are determined from benchmarks of the Physics code (e.g., DIT/ROCS for Waterford 3) to plant measurements. For all parameters except power peaking, the uncertainty is defined to bound the 95/95 tolerance limits of the population of total difference between the calculation and the measurement. Since the uncertainty factor is based on the total difference between the calculation and the measurement, it accounts for the measurement uncertainty as well as the pure calculational uncertainty.

The method for measuring control rod worth used by most Combustion Engineering (CE) plants (including Waterford 3) is the CEA Exchange Technique. In this technique a reference bank is defined to be used such that its worth will be exchanged for the various test bank worths. The worth of the reference bank is first measured by boron dilution. As the other "test banks" are inserted one at a time, their reactivity is compensated by movement of the reference bank. The worth of these test banks are inferred by the indicated position of the reference bank.

The uncertainty in the measured control rod worth using this technique is due to many components: (1) control rod position uncertainty; (2) measured boron concentrations errors; (3) differences between actual values of the kinetics parameters and the values used in the reactivity computer; (4) changes in the reference bank worth during test bank exchange; and (5) effects of spatial flux redistribution on the excore detector signals that are used to drive the reactivity computer. Since these effects are difficult to quantify separately, the uncertainty method used by Westinghouse for the CE plants is to assign all these uncertainty components to the calculational uncertainty.

The uncertainty factors defined by this method are applied in the safety analysis in a conservative manner. For example, scram worths are reduced by the 95/95 lower tolerance limit of the total difference between calculation and measurement whereas CEA Banks worths used in the Inadvertent CEA Withdrawal Accident are increased by the 95/95 upper tolerance limit. Since these tolerance limits include the measurement uncertainty as well as the pure calculational uncertainty, the impact of explicit CEA position uncertainty is thus accounted for in the safety analysis.

Waterford 3 procedures call for not changing CEA positions during the performance of physics tests to measure Isothermal Temperature Coefficient (ITC) and Moderator Temperature Coefficient (MTC). Since the control rods are not moved during the testing, there is no impact on the ITC or MTC results associated with CEA position measurement uncertainty.

Thus, CEA position uncertainty is accounted for within the Westinghouse methodology. If it were also explicitly applied on surveillances to Technical Specification values, this would be accounting for that uncertainty twice. However, if the effects of CEA position uncertainty were to be also explicitly included in the uncertainty analysis over and above the inherent inclusion in bias and reactivity worth measurements, the impact of the overall CEA scram worth uncertainty would be negligible. For an assumed lead bank position 3.7 inches beyond the assumed insertion limit, the associated reduction in CEA scram worth would be less than 0.5%. If this uncertainty component were statistically combined with the remainder of scram worth uncertainty of about 6.5%, the net uncertainty would increase by a negligible 0.02%. Thus, there would be negligible benefit associated with the additional burden of accounting for this uncertainty twice in the overall process.

5.0 REGULATORY ANALYSIS

5.1 Applicable Regulatory Requirements/Criteria

10 CFR 50.36, Technical Specifications

Paragraph (c)(1)(ii)(A) requires, in part, that, where a limiting safety system setting is specified for a variable on which a safety limit has been placed, the setting be so chosen that automatic protective action will correct the abnormal situation before a safety limit is exceeded. No

Technical Specification limiting safety system settings are changed or affected by this license amendment request since this request is administrative in nature in that it provides descriptions of how Entergy Operations, Inc, (Entergy) accounts for instrument uncertainty at Waterford Steam Electric Station, Unit 3 (Waterford 3).

Paragraph (c)(2), Limiting Conditions for Operation (LCO's) are the lowest functional capability or performance levels of equipment required for safe operation of the facility. Paragraph (c)(2) does not prescribe any specific approach for the treatment of instrument measurement uncertainty. Waterford 3 maintains compliance to 10CFR50.36 for the parameters listed above by applying an explicit offset for instrument uncertainty in the analyses and/or procedures consistent with the Waterford 3 licensing bases and HICB-12.

General Design Criterion (GDC)

GDC 13, "Instrumentation and Control," requires, among other things, that instrumentation be provided to monitor variables and systems and that controls be provided to maintain these variables and systems within prescribed operating ranges. No instrumentation or controls are being added or deleted by this license amendment request since this request is administrative in nature in that it provides descriptions of how Entergy Operations, Inc, (Entergy) accounts for instrument uncertainty at Waterford Steam Electric Station, Unit 3 (Waterford 3).

GDC 20, "Protection System Functions," requires, among other things, that the protection system be designed to initiate operation of appropriate systems to ensure that specified acceptable fuel design limits are not exceeded. No protective system functions or protective system initiation setpoints are changed or affected by this license amendment request since this request is administrative in nature in that it provides descriptions of how Entergy Operations, Inc, (Entergy) accounts for instrument uncertainty at Waterford Steam Electric Station, Unit 3 (Waterford 3).

Miscellaneous

No regulatory requirements exist for the incorporation of instrument uncertainty in the operating envelope limits (i.e., non-LSSS setpoints) used as inputs to the safety analysis process, with the exception of initial power level. Regulatory Guide 1.49 establishes the requirement that safety analyses be performed for an initial power level that accounts for power measurement uncertainty. However, for plants other than Waterford 3, some approved analysis methodologies credit other uncertainties to support performing analyses without explicit consideration of power measurement uncertainty in the power value itself. Also, licensing basis analyses for low probability events that are considered "beyond design basis" are performed at the licensed power level, without uncertainty (e.g., Station Blackout, Anticipated Transient Without Scram (ATWS)).

The determination of the safety significance of instrument functions should consider all available information. This would include review of deterministic requirements, the impact on risk, and other available information. Consideration of the margin of safety associated with applicable parameters would be within this scope. This approach ensures reactor safety, complies with regulatory requirements, is based on sound engineering practices, and avoids unnecessary operating restrictions upon the plant. This allows attention to be focused in a manner to maximize the safety benefit.

The accounting of instrument uncertainty for setpoints other than Reactor Protection System (RPS) and Engineered Safety Features Actuation Systems (ESFAS) setpoints is discussed in an NRC Task Interface Agreement Evaluation (TAC No. M95177) dated July 22, 1996. The NRC staff has previously recognized that, for instrumentation other than ESFAS or RPS, instrument uncertainty can be accounted for through plant safety analyses, Technical Specification limiting values, measured values, surveillance testing, or emergency procedures. The use of ISA standard S67.04 is not required and other methodologies can be used to account for instrument uncertainty. HICB-12 provides additional guidance for accounting for instrument uncertainty.

Entergy has determined that the proposed change does not require any exemptions or relief from regulatory requirements and does not affect conformance with any General Design Criterion (GDC) differently than described in the Updated Final Safety Analysis Report (UFSAR.)

5.2 No Significant Hazards Consideration

This letter provides, for NRC staff review and approval, the information required by the license condition regarding instrument uncertainty that was imposed on Waterford 3 with the approval and issuance of the Extended Power Uprate (EPU) amendment (i.e., Amendment 199) and is a request to amend Operating License(s) NPF-38 for Waterford Steam Electric Station, Unit 3 (Waterford 3) to remove the license condition. The license condition required that additional information regarding how instrument uncertainty is accounted for in Technical Specification parameters impacted by EPU be submitted for NRC staff review and approval. The required information was submitted with this license amendment request and approval of this request documents the completion of the NRC staff's review and approval as required by the license condition. The completion of the license condition will allow Waterford 3 to proceed above 3441 MWt and achieve the EPU power level of 3716 MWt as authorized in Amendment 199 to the Waterford 3 Operating License.

Entergy Operations, Inc. has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The proposed change is administrative in nature and does not result in a change to any structure, system, or component (SSC). The accident mitigation features of the plant for previously evaluated accidents are not affected by the proposed change. The proposed change has no impact on the safety analysis because the application of an explicit offset to the Technical Specification parameters for instrument uncertainty provides additional assurance that the plant will operate within the operating envelop previously analyzed. The completion of the license condition will allow Waterford 3 to operate at the power level of 3716 MWt which has previously been evaluated and approved by the NRC staff as documented in Amendment 199 to the Waterford 3 Operating License.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed change is administrative in nature and does not change the design function or operation of any SSC. The proposed change introduces no new mode of operation. The proposed change does not affect the functional capability of safety-related equipment. The completion of the license condition will allow Waterford 3 to operate at the power level of 3716 MWt which has previously been evaluated and approved by the NRC staff as documented in Amendment 199 to the Waterford 3 Operating License.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed change is administrative in nature and does not result in a change to any structure, system, or component (SSC). The accident mitigation features of the plant for previously evaluated accidents are not affected by the proposed change. The proposed change has no impact on the safety analysis because the application of an explicit offset to the Technical Specification parameters for instrument uncertainty provides additional assurance that the plant will operate within the operating envelop previously analyzed. Existing Technical Specification operability and surveillance requirements are not reduced by the proposed change. The completion of the license condition will allow Waterford 3 to operate at the power level of 3716 MWt which has previously been evaluated and approved by the NRC staff as documented in Amendment 199 to the Waterford 3 Operating License.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, Entergy concludes that the proposed amendment(s) present no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.3 Environmental Considerations

The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no

environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 REFERENCES

7.1 Entergy letter to the NRC dated November 13, 2003, "License Amendment Request NPF-38-249, Extended Power Uprate" (W3F1-2003-0074)
7.2 Waterford 3 Final Safety Analysis Report
7.3 Waterford 3 Technical Specifications (through Amendment 199)
7.4 NUREG-0212, "Standard Technical Specifications for Combustion Engineering Pressurized Water Reactors," Revision 3, December 1981
7.5 NUREG-1432, Improved Standard Technical Specifications Combustion Engineering Plants," Revision 3, June 2004
7.6 10CFR50.36, "Technical Specifications"
7.7 Branch Technical Position HICB-12, "Guidance on Establishing and Maintaining Instrument Setpoints," June 1997
7.8 NRC Task Interface Agreement Evaluation (TAC No. M95177) dated July 22, 1996
7.9 Regulatory Guide 1.49, "Power Levels at Nuclear Power Plants," Revision 1, December 1973