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RBG-47211

February 24, 2012

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

SUBJECT: Response to Request for Information
Changes to Technical Specification 3.3.6.1, "Primary Containment and Drywell Isolation Instrumentation"
River Bend Station, Unit 1
Docket No. 50-458
License No. NPF-47

REFERENCES:

1. Entergy Letter to NRC dated July 27, 2011, License Amendment Request, Changes to Technical Specification 3.3.6.1, "Primary Containment and Drywell Isolation Instrumentation" (RBG-47157)

2. NRC letter to Entergy dated September 1, 2011, Supplemental Information Needed For Acceptance Of Requested Licensing Action Re: Request To Modify Main Steam Tunnel Temperature Function (TAC NO. ME6843)

3. Entergy Letter to NRC dated September 16, 2011; Supplemental Information Changes to Technical Specification 3.3.6.1, "Primary Containment and Drywell Isolation Instrumentation" (RBG-47176)

4. NRC Email to Entergy dated January 9, 2012

5. Entergy Letter to NRC dated February 7, 2012; Supplemental Information Changes to Technical Specification 3.3.6.1, "Primary Containment and Drywell Isolation Instrumentation" (RBG-47207)

6. NRC Email to Entergy dated January 25, 2012

Dear Sir or Madam:

On July 27, 2011 Entergy Operations, Inc. (Entergy) submitted a request for an amendment to the Technical Specifications (TS) for River Bend Station (RBS), Unit 1. A change is proposed to Technical Specification (TS) 3.3.6.1, "Primary Containment and Drywell Isolation Instrumentation" to revise the allowable value setpoints for the Main Steam Tunnel Temperature functions 1.e, 3.f and 4.h (Reference 1).

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The NRC requested additional information on September 1, 2011 (Reference 2). Entergy's response to this request was provided in a letter dated September 16, 2011 (Reference 3). The NRC requested additional information (Reference 4). Entergy's response to this request was provided in a letter dated February 7, 2012 (Reference 5).

On January 25, 2012, the NRC requested additional information (Reference 6). Entergy's response to this request is provided in Attachment 1 to this letter.

There are no new commitments in this letter.

If you have any questions or require additional information, please contact me at (225) 381-4177.

Sincerely,

JAC/bmb

Attachments:

1. Response to Request for Information

cc: Regional Administrator
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RBG-47211
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e-mail: Standard Distribution

LAR 2011-12
RBG-47211
RBF1-12-0023

File Codes; G 9.5, G 9.42

Attachment 1

RBG-47211

Response to Request for Information

The following response to the NRC request for information dated January 25, 2012, is related to July 27, 2011 submittal as supplemented on; September 16, 2011 and February 7, 2012.

1. Attachment 1, Section 2 of the LAR (ADAMS Accession No. ML11214A093), identifies a proposed Note to be added to Surveillance Requirement (SR) in accordance with the Technical Specification Task Force (TSTF)-493, "Clarify Application of Setpoint Methodology for LSSS Functions." To support the NRC staff review, please identify the reference to the "plant specific program" used to calculate the As-Found Tolerance (AFT), and As-Left Tolerance (ALT) for the main steam tunnel temperature functions.

Response

As-found tolerances account for the potential instrument loop drift that may be experienced during the period of time between calibrations. The value for As-left tolerance is established to ensure the Allowable Value is not exceeded during the calibration interval. During the performance of calibrations, adjustments will be made if necessary to return the loop/instrument to within the As-left tolerances (i.e., calibrate out the drift).

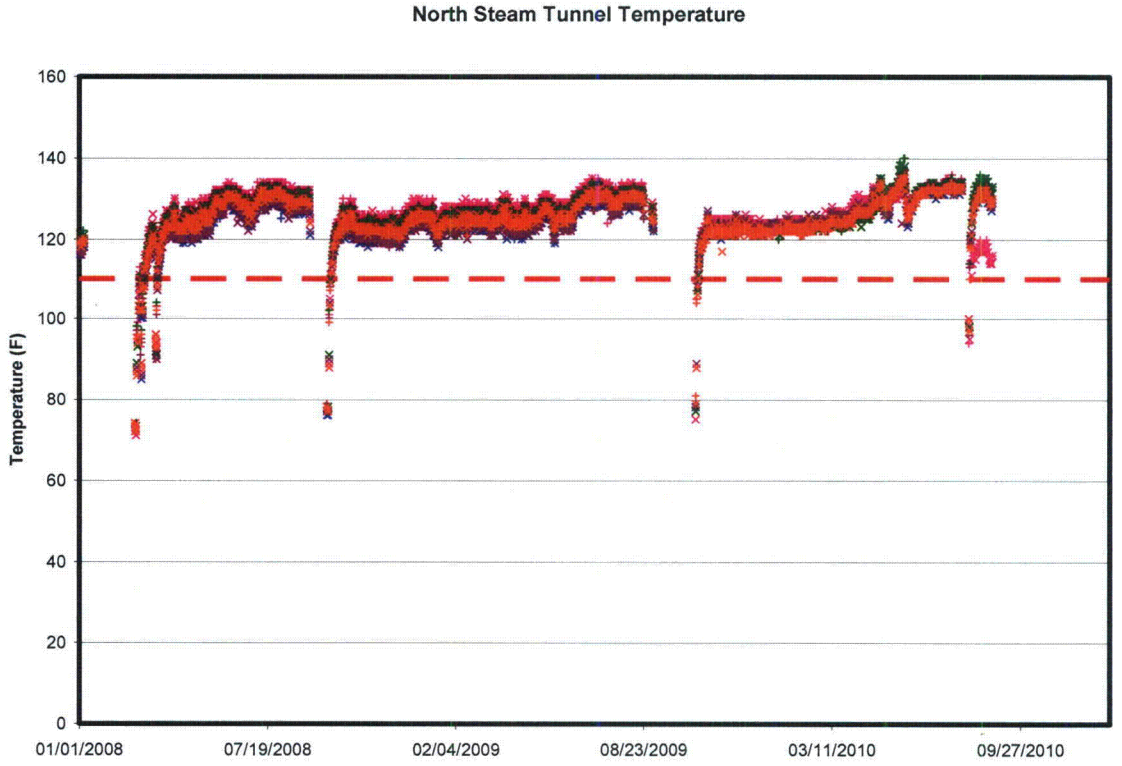
The program is incorporated into multiple procedures which identify out of tolerance instruments and identify the out of tolerance condition in the corrective action program. Additional monitoring is conducted under the corrective action program.

Response to question 4.e below contains additional details on as-found and as-left determination.

2. Attachment 1, Section 3.0 of the LAR (ADAMS Accession No. ML11214A093) explains that River Bend Station (RBS) has determined that during the summer months the main steam tunnel temperature high alarm has reached the trip setpoints. Please provide a summary of the data collected, including the time duration and the receipt of the high temperature alarms.

Response

The following figure summarizes the north steam tunnel temperatures over the period from January 2008 to August 2010. The large dips in area temperature coincide with large decreases in reactor power. The data was taken from the daily operating logs with readings taken during day and night shifts.



RAI # 2 (partial) "provide a summary of the data collected, *including the time duration and the receipt of the high temperature alarms.*"

Response

The alarms used for the main steam tunnel are currently set at 135 F. These monitors are used as alarms for the main steam temperature isolation functions.

The alarm data was review was limited to 2010. During 2010 five events above 135F were received during the period of May to August with the event date/times identified below. Note, alarms were normally from a single instrument of the 4 locations and for limited periods.

Entry date	[End date] / Comment
5/12010	[5/2/2010] / Backseat valve to eliminate leakage
5/2/2010	[5/21/2010] / Evaluated as acceptable, temperature remained below isolation setpoint.
5/27/2010	[6/2/2010] / Investigation found leak in suspected area.
7/6/2010	[5.5 hrs]; HVAC system adjustment
8/15/2010	[6 hrs]; Evaluated as acceptable, temperature remained below isolation setpoint.

3. Attachment 1, Section 4.1 of the LAR (ADAMS Accession No. ML11214A093), states that as part of this amendment request, the analytical limit for the main steam tunnel temperature - high is increased from 154°F to 194.77°F. This sentence implies that Entergy is requesting approval of this change as part of the LAR, even thought other sections of the LAR implied that the AL has been already modified. In addition, please note that comment 4.1 in Entergy's September 16, 2011 letter (ADAMS Accession No. ML11263A013) states that the AL was previously changed per RBS Engineering Change EC-26710 and Calculation G13.18.14.1-036. Please clarify.

Response

NRC approval is not requested for the change to the analytical limit from 154°F to 194.77°F. The change to the analytical limit was reviewed under the Entergy 50.59 program.

The Analytical limit is the basis for the requested Allowable Value change requested.

4. The summary calculation for the main steam tunnel high-high temperature setpoint provided in Entergy's September 16, 2011 letter (ADAMS Accession No. ML11263A013) does not provide sufficient information to make a determination that adequate margin has been established when calculating the Allowable Value (AV) Setpoint to allow for all instrument channel performance uncertainties. To support the NRC staff, please:

a. Confirm that the summary calculation for the steam generator water high-high level setpoint is in accordance with NEDC-31336, "General Electric Instrument Setpoint Methodology." Section 4.3 of the LAR states that the methodology used in determining Nuclear Steam Supply Shutoff (NSSS) safety system is similar to that used for balance of plant safety setpoints, which is documented in NEDC-31336.

Response

The summary calculation for the main steam line tunnel temperature – high setpoint is based on Calculation G13.18.6.1-E31*009 which was prepared in accordance with NRC approved General Electric Setpoint Methodology (NEDC-31336P-A). Section 4.3 of the LAR is an excerpt from RBS USAR Section 7.1.2.5 which states that the methodology used in determining NSSS safety system setpoints is similar to that described previously (in the same USAR section) for BOP safety system setpoints. The sentence in the LAR stating "This methodology is documented in NEDC-31336, General Electric Instrument Setpoint Methodology, dated October 1986" is in reference to the NSSS safety system setpoints, not the BOP safety setpoints. Further clarification can be found in USAR Section 7.1.2.5 which goes on to state "An outline of the methodology used for the determination of NSSS safety-related setpoints, as described in NEDC-31336..."

b. Provide the source for the values identified in this calculation.

Response

The source of the values in the summary calculation is RBS Calculation G13.18.6.1-E31*009.

c. Provide data to show that tolerance limits for this calculation have been based on a statistically sufficient quantity of sample data to bound these values and provide a confidence that the interval contains 95 percent of the population, with a 95% confidence level.

Response

The tolerance limits for Calculation G13.18.6.1-E31*009 are defined as "reference accuracies" and derived from vendor supplied documentation. Vendor accuracy values are verified by the vendor for each component shipped from the vendor and this verification meets the confidence requirement for 95/95. .Additionally, the bounding drift values for the affected temperature switches were analyzed in Calculation G13.18.6.3-025, Drift Study for NUS A076PA-1 Temperature Switches. The drift calculation contained greater than 30 samples of plant specific drift and meets the criteria for a confidence interval of 95/95 using plant date. The calculation recommended treating the analyzed drift value as normally distributed.

d. Describe the algorithm or equation used to calculate the AV setpoint and how the uncertainty terms were combined in the equation and how these terms represent their contribution to total error. Also, please identify the terms that are considered random and independent, random and dependent, and non-random.

Response

The equation used in G13.18.6.1-E31*009 to calculate the Nominal Trip Setpoint (NTSP) is as follows:

NTSP = Analytical Limit (AL) – Total Loop Uncertainty (TLU) – Margin (M_{NTSP})

Where:

$TLU = \pm [(A_L)^2 + (C_L)^2 + (M_L)^2 + (D_L)^2]^{1/2} + IR$

And:

A_L = Channel Instrument Accuracy
C_L = Loop Calibration Accuracy
M_L = Miscellaneous Allowance

D_L = Channel Drift
IR = Insulation Resistance Effects

The uncertainty terms are combined using the Square Root of the Sum of the Squares (SRSS) method which applies to independent, normally distributed statistical values (i.e., assumes random terms can be approximated by a random normal distribution). IR Effects are a non-random uncertainty and as such are included as a bias in the uncertainty equation. Additional margin is included, based on engineering judgment, for increased conservatism.

e. Provide the basis for calculating the allowable value (AV), as found tolerance, and as left tolerance. Demonstrate that with the instrument "as-found" value at the AV, under the worst-case condition the channel trip function will be achieved with a 95% probability before the AL is reached.

Response

The Allowable Value calculation is in accordance with the NRC approved GE Setpoint Methodology (NEDC-31336P-A).

The As-Left Tolerance (ALT) is determined in the applicable Setpoint Data Sheet based on the temperature switch uncertainty and accounting for power supply effects. The ALT is calculated using the SRSS methodology and the resultant value is rounded for field use. It is the acceptable limit in which a channel, or portion of a channel should be within after calibration or verification.

The As-Found Tolerance (AFT) is determined in the applicable Setpoint Data Sheet based on the As-Left Tolerance and temperature switch drift. The AFT is calculated using the SRSS and the resultant value is rounded for field use. It is the acceptable limit in which a channel, or portion of a channel, should be within after of operation and before calibration.

The NRC approved GE setpoint methodology confirms that appropriately calculated setpoints, including the appropriately applied ALTs and AFTs, will result in a 95 percent probability with 95% confidence of a channel trip occurring before the process variable reaches the AL.

f. Provide information to clarify comment 4.1 in Entergy's September 16, 2011 letter (ADAMS Accession No. ML11263A013), which states "Analytical Value previously changed from 154°F to 194.7°F..." This seems to be a mistake, since this change appears to be referring to the Analytical Limit.

Response

The reference to the "Analytical Value " is intended to identify the "Analytical Limit" which was changed from 154°F to 194.7°F.

g. Please clarify the calculations referenced in this letter. Entergy's Summary to G13.18.6.1-E31*009 provided in its September 16, 2011 letter (ADAMS Accession No. ML11263A013) identifies calculations listed in reference section 3.3, 3.8, 3.12, and 3.27.

Response

Calculation G13.18.6.1-E31*009 contain the following references:

3.3 Environmental Design Criteria, Spec 215.150 including USAR figures 3.11-1 through 5 as outlined in EDP-AN-02 section 6.3.1

3.8 Stone & Webster Seismic Calculation 201.130-186, Peak Spreading of ARS Curves for the Control Building (CB-136)

3.12 G13.18.1.5*008 Peak Spread ARS for Seismic Events Including Curves with N-411-1 Damping

3.27 G13.18.6.3-025, Drift Study for NUS A076PA-1 Temperature Switches

5. Attachment 1, Section 4.2 of the LAR (ADAMS Accession No. ML11214A093), states that the USAR tables 5.2-7 and 5.2-8 indicate that the main steam tunnel ambient temperature provides alarm and isolation. Please clarify if the temperature alarms have two setpoints, one for alarm and one for isolation, or if the high temperature alarms have only one setpoint to perform both functions of isolation and alarm.

Response

Temperature switches E31-N604A, B, C, and D have only one setpoint that performs both the isolation and alarm function. Temperature Switches E31-N604E and F have only one setpoint for the isolation function. They are in the same instrument loops as the alarms for E31-N604A and B, respectively.

Temperature Recorder E31-TRSR608 provides high temperature alarms only for various process parameters, including the Main Steam Tunnel area upstream of the jet impingement wall (i.e., north end of main steam tunnel). The setpoint for this alarm is chosen to alert Operations to plant conditions that could lead to a main steam line isolation and plant trip. The alarm is currently set at 135 °F and it will be changed to 144 °F upon implementation of the revised AV (≤ 183 °F). The alarm function of E31-TRSR608 is not related to any RBS Technical Specification or Technical Requirements Manual requirements.