



Entergy Operations, Inc.
1448 S.R. 333
Russellville, AR 72802
Tel 479-858-4888

Jeffrey S. Forbes
Vice President
Operations ANO

1CAN010605

January 10, 2006

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

SUBJECT: Supplement to Amendment Request
Response to Additional Questions Related to the Revision of the Allowable Value
for Emergency Feedwater Initiation and Control Function (EFIC)
Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51

- REFERENCE:**
1. Entergy Letter dated January 3, 2006, *Request for Emergency Technical Specification Change to Revise the Actuation Allowable Value for Emergency Feedwater Initiation and Control Function (EFIC) (1CAN010601)*
 2. Entergy Letter dated January 6, 2006, *Supplement to Amendment Request: Revision of the Allowable Value for Emergency Feedwater Initiation and Control Function (EFIC)*

Dear Sir or Madam:

By letter (Reference 1), Entergy Operations, Inc. (Entergy) proposed a change to the Arkansas Nuclear One, Unit-1 (ANO-1) Technical Specifications (TSs) to the Steam Generator (SG) Level – Low allowable value of Limiting Condition for Operation (LCO) 3.3.11, Emergency Feedwater Initiation and Control (EFIC) System Instrumentation.

On January 5 and 6, 2006, Entergy was notified by your staff that additional information with respect to the above subject was desired. As a result, 14 questions were determined to need formal response. Entergy provided a response to each of these questions in its letter dated January 6, 2006 (Reference 2).

On January 9, 2006, Entergy was notified of 3 additional questions from the Electrical and Instrumentation and Controls Branch. These questions were discussed in conference call with the NRC staff on January 9 and 10, 2006. Based on these conversations, Entergy is providing response to the additional questions in Attachment 1 of this transmittal. As requested by the NRC staff, minor changes are also proposed to the TS and TS Bases contained within the original submittal (Reference 1). Attachment 2 contains the affected TS page modified in relation to the original submittal. Attachment 3 contains the affected TS Bases page (for information only) modified in relation to the original submittal.

A 001

The changes are more restrictive (more conservative) than that proposed in the January 3, 2006 transmittal (Reference 1). Therefore, the original no significant hazards consideration included in Reference 1 is not affected by any information contained in this supplemental letter. There are no new commitments contained in this letter.

If you have any questions or require additional information, please contact David Bice at 479-858-5338.

I declare under penalty of perjury that the foregoing is true and correct. Executed on January 10, 2006.

Sincerely,



JSF/dbb

Attachments:

1. Response to Request for Additional Information
2. Proposed Technical Specification Changes (mark-up)
3. Proposed Technical Specification Bases Changes Mark-Up (For Information Only)

cc: Dr. Bruce S. Mallett
Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

NRC Senior Resident Inspector
Arkansas Nuclear One
P.O. Box 310
London, AR 72847

U. S. Nuclear Regulatory Commission
Attn: Mr. Drew G. Holland
MS O-7D1
Washington, DC 20555-0001

Mr. Bernard R. Bevill
Director Division of Radiation
Control and Emergency Management
Arkansas Department of Health
4815 West Markham Street
Little Rock, AR 72205

Attachment 1

To

1CAN010605

Response to Request for Additional Information

Response to Request for Additional Information Related to Revision of the Allowable Value for Emergency Feedwater Initiation and Control Function (EFIC)

Question 1 (EICB-1):

It appears from the licensee's responses to the RAI that the OTSG level is expected to go to zero by the time EFW arrives, and to remain there until after the RCS has begun to cool. After that, OTSG water inventory begins to increase and so the effectiveness of the OTSG in removing heat from RCS increases from its already-adequate value, but the heat load to be removed from RCS is simultaneously decreasing. The OTSG level, and therefore control of it, is therefore irrelevant to stopping the pressure/temperature increase in the RCS, and once the P/T increase has been reversed, the OTSG level is not important to controlling the remainder of the transient. Therefore the SG Level low setpoint for EFW initiation is important to safety, but SG level control considerations following EFW initiation are not germane to the assurance of reactor safety. Please confirm.

Response 1:

The Reviewer's assessment is correct. Entergy confirms the above assessment adequately describes the plant response during a Loss of Feedwater event.

Question 2 (EICB-2):

ST as presented in Response 11b is 0.111% (calc pages 200 & 250) and is referenced on proposed bases page B3.3.11-14 (for SR3.3.11.2, new paragraph) as establishing a limiting value for the As-Left setting. But that same paragraph in the bases then specifies the As-Left setting tolerance band as 0.975 inches, which is considerably larger than the 0.111% of span shown on calculation pages 200 and 250. 0.975 inches is shown on calculation pages 221 and 257 to be the value of Dtol, which includes RA as well as ST. The response to Q13 does not address the principle concern of the question, which is that permitting the As-Left setting to exceed the Limiting setting by an amount that includes RA reduces the margin between the analytical limit and the as-left setpoint to an amount insufficient to accommodate RA along with the other uncertainty components. Therefore, if the As-Left tolerance includes RA, then the limiting setpoint must be a hard limit that must not be violated by any amount. If the submitted calculation is the basis for the proposed TS, then the TS reset requirement should be as indicated in Q13 (reset to a value no less conservative than the limiting setpoint, with no reference to the As-Left tolerance)

Response 2:

Although Entergy believes the in-plant implementation of the Emergency Feedwater Initiation and Control (EFIC) Steam Generator (SG) Level - Low As-Left value is consistent with the NRC and industry guidance available to date, adjusting the setpoint to an As-Left value of greater than or equal to the Limiting Trip Setpoint (LTS) will support Entergy's intent to gain margin between the trip setpoint and the at-power indicated EFIC Low Range SG Level. Therefore, as requested by the NRC staff, Entergy has revised Note 2 to Technical Specification (TS) 3.3.11 Surveillance Requirements (SR) 3.3.11.2 and 3.3.11.3 to require the As-Left setting to be a value greater than or equal to the LTS (see Attachment 2). The modification to the affected TS is considered to be more restrictive in nature. Therefore, the

revised markup included in Attachment 2 does not invalidate the No Significant Hazards Consideration of the original Entergy letter supporting these changes, dated January 3, 2006. As a result of the change to the affected TS page, the associated TS Bases for the aforementioned SRs are also revised and are provided in Attachment 3 for information only.

Question 3 (EICB-3):

The purpose of the Deviation Limit is to provide a means whereby it can be shown that a channel setpoint is not exhibiting unexpected behavior as would be evidenced by excessive deviation from the previous setting. This can only be accomplished by comparing the As-Found setting with the previous As-Left setting. If the Setting Tolerance is a sufficiently small fraction of the anticipated deviation, then it may be possible to show that using the nominal setpoint rather than the previous As-Left setting will adequately accomplish the same objective. Use of the limiting setpoint as a reference cannot accomplish this objective, because of the arbitrary margin between the nominal and limiting values. That margin may be zero or large, depending upon the intent of the system designer. Unless the licensee can show that some alternative approach accomplishes the same objective, it is the staff position that the As-Found setting must be referenced to the previous As-Left setting and not to the limiting setting

Response 3:

Entergy believes the current method of trending and evaluating EFIC instrumentation meets the intent of ensuring a failing instrument will be detected and repaired/replaced prior to its inability to ensure EFIC is initiated within the limits established. Nevertheless, Entergy will compare instrument As-Found values with the As-Left values from the previous test. Therefore, Entergy proposes to revise the associated TS Bases for the EFIC SG Level – Low setpoint to include a comparison of the As-Found value with the previous test As-Left value to determine continued instrument functionality.

Attachment 2

To

1CAN010605

Proposed Technical Specification Changes Markup

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time not met for Function 1.a or 1.d.	E.1 Reduce THERMAL POWER to $\leq 10\%$ RTP.	6 hours
F. Required Action and associated Completion Time not met for Functions 1.c, 2, or 3.	F.1 Be in MODE 3.	6 hours
	<u>AND</u> F.2 Reduce steam generator pressure to < 750 psig.	12 hours

SURVEILLANCE REQUIREMENTS

NOTE

Refer to Table 3.3.11-1 to determine which SRs shall be performed for each EFIC Function.

SURVEILLANCE	FREQUENCY
SR 3.3.11.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.11.2 Perform CHANNEL FUNCTIONAL TEST. <small>(Notes 1 & 2)</small>	31 days
SR 3.3.11.3 Perform CHANNEL CALIBRATION. <small>(Notes 1 & 2)</small>	18 months

The following notes apply only to the SG Level – Low function:

Note 1: If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found acceptance criteria band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable.

Note 2: The instrument channel setpoint shall be reset to a value that is equal to or more conservative than the Limiting Trip Setpoint; otherwise, the channel shall be declared inoperable. The Limiting Trip Setpoint and the methodology used to determine the Limiting Trip Setpoint and the predefined as-found acceptance criteria band are specified in the Bases.

Attachment 3

To

1CAN010605

Proposed Technical Specification Bases Changes Mark-Up (For Information Only)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.11.1 (continued)

The Frequency is based on operating experience that demonstrates channel failure is rare. Since the probability of two random failures in redundant channels in any 12 hour period is extremely low, the CHANNEL CHECK minimizes the chance of loss of protective function due to failure of redundant channels. The CHANNEL CHECK supplements less formal, but more frequent, checks of channel OPERABILITY during normal operational use of the displays associated with the LCO required channels.

SR 3.3.11.2

A CHANNEL FUNCTIONAL TEST verifies the function of the automatic bypass removal feature, required trip, interlock, and alarm functions of the channel. Setpoints for trip functions must be found within the Allowable Value. (Note that the values for the bypass removal functions are identified in the Applicable MODES or Other Specified Condition column of Table 3.3.11-1 as limits on applicability for the trip Functions.) Any setpoint adjustment shall be consistent with the assumptions of the current setpoint analysis.

The Frequency of 31 days is based on unit operating experience with regard to channel OPERABILITY and drift, which demonstrates that failure of more than one channel of a given function in any 31 day interval is a rare event.

This SR is modified by two notes. For the SG Level – Low function, if the as-found trip setpoint is found to be non-conservative with respect to the Allowable Value specified in TSs, the channel is declared inoperable and the associated TS action statement must be followed. If the as-found trip setpoint is found to be conservative with respect to the Allowable Value and outside the as-found predefined acceptance criteria band of ± 1.08 inches from the previous as-left value, but is determined to be functioning as required and can be reset to a value equal to the Limiting Trip Setpoint or a value more conservative than the Limiting Trip Setpoint, then the channel may be considered to be operable. If it cannot be determined that the instrument channel is functioning as required, the channel is declared inoperable and the associated TS actions must be followed. If the as-found trip setpoint is outside the as-found predefined acceptance criteria band, the condition must be entered into the corrective action program for further evaluation. The notes for the Channel Functional Test do not apply to the verification of the time delay.

SR 3.3.11.3

CHANNEL CALIBRATION is a complete check of the instrument channel including the sensor. The test verifies the channel responds to a measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channels adjusted to account for instrument drift to ensure that the instrument channel remains operational between successive tests. CHANNEL CALIBRATION shall find that measurement errors and bistable setpoint errors are within the assumptions of the setpoint analysis. CHANNEL CALIBRATIONS must be performed consistent