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From: Mazza, Jan
Sent: Monday, December 12, 2011 8:44 AM
To: 'Poslusny, Chester'
Cc: Ashcraft, Joseph; Starefos, Joelle
Subject: SetPoint Methodology Draft RAI discussion - 12-12-11 @10:00 am
Attachments: BW_mPower_RAIs_SetPoint_Draft.docx

Chet,
Attached is the Draft RAIs for today's discussion.

The bridgeline information is:
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DRAFT 12-12-11

mPower Pre-Application Activities

Babcock and Wilcox

Docket No. PROJ 0776

SRP Section: 07.01-C Appendix - Guidance for Evaluation of Conformance to IEEE Std. 603
Topical Report 08-002089 Instrument Setpoint Methodology

QUESTIONS for Instrumentation, Controls Branch (ICE1)

07.01-C Appendix- 1

Section 3.1 – On page 3, paragraph 7 states, “Recognizing that RG 1.105, Revision 3, was published in 1999, the B&W, mPower instrument setpoint methodology follows the guidance provided by ANSI/ISAS67.04.01-2000 (Ref. 6.3.1), which is equivalent to ANSI/ISA S67.04-1994, Part I (now ANSI/ISAS67.04.01-2006),”

What is meant by “(now ANSI/ISAS67.04.01-2006)?” It is listed as reference 6.3.3, however, other than this statement, it is not mentioned anywhere else. Does the mPower methodology meet ANSI/ISAS67.04.01-2006?

07.01-C Appendix- 2

Section 3.3.2 - Provide explanation or formula for the difference (or the same) value between 3.3.2 versus 3.4.2. Is SRSS method used in either case? Also see last sentence of Section 4.1.4, second paragraph.

07.01-C Appendix- 3

Section 3.5 - First bullet assumption conflicts with Section 3.4.1, first paragraph, last sentence. Provide an explanation.

3.4.1 Any bias effects that cannot be calibrated out are directly accounted for in the uncertainty calculation.

3.5 Where bias terms have opposite effects on instrument accuracy (positive versus negative), and are both of known magnitude, the two uncertainties may be used to offset each other.

07.01-C Appendix - 4

Section 3.5 - Last bullet is only valid if the temperature profiles for all sensor locations are controlled in a similar range. Provide details of sensor locations and temperature profiles.

07.01-C Appendix- 5

Figure 4.1 - Setpoint development in not conservative:
Typically CHU⁻ and B⁻ are used to determine increasing SPs
Typically CHU⁺ and B⁺ are used to determine decreasing SPs

Explain how the mPower methodology meets the regulations using this approach and/or is more conservative. See 67.04.02, Section 7.2, Example 1

07.01-C Appendix- 6

Section 4.1.3.1 – The “as-left tolerance specification” and “as-found specification” are not defined in Appendix B (refer to as-found, as- found tolerance, as-left, and as-left tolerance).

07.01-C Appendix- 7

Section 4.1.5 - Should this section reference equation 4.2.3?

07.01-C Appendix- 8

Section 4.1.6 – The last half of the second paragraph states “A setpoint found within the allowable value region, but outside the as-found tolerance, is considered operable, but degraded. It is acceptable with respect to the analytical limit; however, the instrument must be reset to return it within the allowed as-left tolerance region (see definitions)...” This conflicts with Section 4.2.5 which states “The AFT is included to determine if the instrument needs to be reset after calibration or, if outside of the tolerance, requires further investigation as to its operability. The as-found readings also provide data for establishing actual instrument drift.”

Provide an explanation for the following scenarios (in terms of calibration requirements, instrument operability, and channel operability).

As-found is within as left tolerance

As-found is outside as-left tolerance but with as-found tolerance

As-found is outside as-found tolerance but within AV

As-found is above/below AV

07.01-C Appendix- 9

Sections 4.2.4, 4.2.5 and Figure 5.1:

1. Section 4.2.4, AFT^{TOT} should be calculated as a +/- value and shown on both sides of NTSP on Fig 5.1.
2. Section 4.2.5, AFT_n should be calculated as a +/- value.
3. Section 4.2.4, Definition of Margin is different from Note 2 on Figure 5.1.
4. Margin (Note 2) is incorrectly shown on fig 5.1, see item 1 above

07.01-C Appendix- 10

Figure 5.1:

1. ALT^{TOT} should be calculated as a +/- value and shown on both sides of NTSP on Fig 5.1.
2. ALT_n should be calculated/documented as a +/- value in setpoint calculation

07.01-C Appendix- 11

Section 4.2.5 - Demonstrate how setpoints are tested and maintained.

1. Use of as found and as left data (sensors, SPs)
2. How is AV, as-found and as-left verified for a SP that is within a digital platform?

07.01-C Appendix- 12

Appendix A Figure A.2 -

1. Margin should be 55 psig not 5.5 psig
2. Using example problem and Notes 1& 2 from Figure 5.1, what would AV, Margin 2 and AFT^{TOT} be if Margin 1 is 5.5 psig (allowed by note 1) versus 55 psig?

07.01-C Appendix- 13

Appendix A Figure A.2 -

1. Using AFT^{TOT} +/- 15.1 psig (-15.1 psig), what would be the operating margin (OM) as described in Section 4.2.6 in order to avoid potential spurious channel trips?
2. Is the methodology described in 4.2.6 sufficient for all cases?