PUBLIC SUBMISSION

Docket: NRC-2014-0163
Issuance of Draft Regulatory Guide

Comment On: NRC-2014-0163-0003
Setpoints for Safety-Related Instrumentation; Correction and Extension of Comment Period

Document: NRC-2014-0163-DRAFT-0005
Comment on FR Doc # 2014-18757

RECEIVED
2014 OCT -3 PM 12: 40
RULES AND DIRECTIVES BRANCH USNRC

Submitter Information

7/11/2014
79FR 40163

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General Comment

(4)

Comments from NewClear Day, Inc. are provided in the attached file.

Attachments

NewClear Day comments on DG-1141 R1

SUNSI Review Complete
Template = ADM – 013
E-RIDS= ADM-03
Add= *P.J. Rehstack (PJR1)*
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NewClear Day, Inc. Comments on DG–1141, "Setpoints for Safety-Related Instruments"

Section A, Scope, Page 4

Modify the first paragraph as follows:

> This RG applies to Limiting Safety System Settings~~all instrument~~ setpoints that are included in plant technical specifications or a setpoint control program in accordance with the requirements of 10 CFR 50.36~~, whether the requirements concerning those setpoints are presented directly in the technical specifications or are incorporated by reference~~.

The scope discussion is not consistent with the with the DG title. It is also not aligned with the reason for the revision described in Section B.1, which is to resolve the issues described in Regulatory Information Summary (RIS) 2006-17, *NRC Staff Position on the Requirements of 10 CFR 50.36, "Technical Specifications," Regarding Limiting Safety System Settings During Periodic Testing and Calibration of Instrument Channels*. The RIS is specifically focused on Limiting Safety System Settings (LSSSs).

Section B.2, Background and Overview, Pages 9

Modify the paragraph at the top of Page 9 as follows:

> Because protection of analytical limit is used to ensure protection of safety limits, ~~the NRC staff considers analytical limits to be surrogate safety limits and therefore to be subject to the same requirements and guidance as safety limits (Section C.1 of this RG).~~ ~~S~~setpoint related technical specification limits are therefore selected so as to provide adequate protection of analytical limits.

Treating Analytical Limits as surrogate Safety Limits has ramifications in definition of Safety Limits in TSs. Equating Analytical Limits with Safety Limits can lead to confusion in the application of the Safety Limit violation requirements in Standard TS 2.0 whenever a Setpoint is found to have exceeded its As-Found Tolerance during surveillance testing.

Section B.4.1, Setpoint Related Limits and Parameters, Note 3, Page 11

Modify Figure 1, Note 3, as follows:

> 3. If the magnitude of an observed deviation exceeds the as-found tolerance (±AFT), the deviation should be evaluated in accordance with ANSI/ISA 67.04.01-2006 Section 6.1 and Section C.7c of this RG. The AFT should be established in accordance with Section C.7.d of this RG. If the actual setting (as-found setpoint) of the channel is found to be conservative with respect to the Allowable Value but is beyond the as-found tolerance band, the channel is operable, but degraded. ~~Section C.7c of this RG addresses the acceptability of occasional deviation in excess of the as-found tolerance (±AFT), provided that the deviations are neither too large nor too frequent. Section C.7e(3) of this RG recommends that the deviation should be deemed excessive if the as-found value (AsF) of the setpoint is less conservative than the allowable value (AV) regardless of whether or not the as-found tolerance is exceeded and whether or not the occurrence of this condition is chronic.~~

For clarity and consistency with the language used in the approved version of TSTF-493, revision 4 (see Federal Register Volume 75, Number 90, Pages 26294-26295), and the guidance provided in RIS 2005-20, *Revision to Guidance Formerly Contained in NRC Generic Letter 91-18, "Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability"*.

Section B.5.2, Constraining the As-Left Setpoint (LSP, NSP, ST), Page 16

Change the Limiting Setpoint (LSP) definition as follows:

> *Limiting Setpoint (LSP)*[8]: the limiting setting for the channel trip setpoint (TSP) considering all credible instrument errors associated with the instrument channel~~the least conservative acceptable value for an as-left setpoint~~.

The RIS 2006-17 definition of LSP should be retained as the basis for this regulatory guide.

Section 5.2, Constraining the As-Left Setpoint (LSP, NSP, ST), Page 18

Modify the discussion associated with Figure 2 related to two-sided statistics to reflect use of a one-sided statistical basis for providing reasonable assurance that Analytical Limits are not exceeded.

The two-sided statistical approach effectively establishes a 97.5% probability of getting channel trip before the process variable reaches the Analytical Limit. It is not consistent with established regulatory practice for treatment of important parameters with a statistical basis. The established regulatory practice is to use the 95% confidence level (the so-called 95/95 statistical approach). NuScale believes that implementation of the more restrictive limits could increase plant trip/transient probability, since operating margins would be reduced. This unintended consequence was not considered in the Regulatory Analysis for DG-1141.

Section C.4, Uncertainty Analyses, Page 22

Delete Item c.(3):

> ~~(3) Section 4.4g: Consideration of dynamic effects should include dynamic effects related to the relationship between the parameter of interest and the parameter actually sensed by the instrument, as well as consideration of the time required for a demand signal to result in the needed action. Some examples include: transport delays associated with the sensing line; delays related to the physical process whereby the parameter of interest is realized at the sensing instrument; and time required for actuated equipment (such as a large gate valve) to perform its safety function. Delays already accounted for in the safety analyses should be recognized in the uncertainty analyses, with a brief description of how they have been accounted for.~~

Inclusion of dynamic effects within the setpoint methodology, as required by Section C.4.c(3), is inconsistent with industry practice. Time delays and dynamic effects associated with protective actions of safety systems should not be treated as an instrument uncertainty in the calculation of TLU. Protection system response time is treated as a separate category of instrument channel performance in the Technical Specifications. The examples of dynamic effects in this section are addressed in determining the acceptance criteria for response time testing required by Technical Specifications.

Section C.4, Uncertainty Analyses, Page 22

Add clarification to Item c.(4) as follows:

> (4) Section 4.5, paragraph 2: Square Root of the Sum of the Squares (SRSS) is acceptable for combining uncertainties only if the uncertainties are statistically independent and are based on normal probability distributions that provide adequate coverage of the underlying data. Other techniques mentioned in this paragraph are not formally defined and are therefore not endorsed by NRC staff. Regardless of the method used to combine uncertainties in any particular computation, the suitability of that method for the particular application should be explained and justified. It is expected that the setpoint calculation preparer evaluates for any known dependence; however, a formal analysis to demonstrate that all Square Root Sum of the Squares parameters are independent it not required.

Clarification of expectations that the evaluation of independence uses reasonable engineering judgment rather than a formal proof of independence.

Section C.4, Uncertainty Analyses, Page 23

Modify Paragraph as follows:

> i. Setpoint related limits that are not generally subject to NRC review – such as for setpoints in a setpoint control program under NRC Technical Specifications Task Force Traveler TSTF-493, "Clarify Application of Setpoint Methodology for Limiting Safety System Settings," option B, (Ref. 20) controlled under 10 CFR 50.59, "Changes, Tests, and Experiments" – should be developed in accordance with a methodology that conforms to this ~~or a later version of this~~ RG. Prior NRC reviews not based on this or a later version of this RG might have been application specific, and might not have addressed these provisions adequately to support applications outside the original context.

Make the discussion consistent with the limitations described in Section D of the RG.

Section C.6, Uncertainty Data and the 95/95 Criterion, Page 24

Modify Item (d) as follows:

> d. All data used in the uncertainty calculations should be adjusted as appropriate to adequately represent population statistics. Alternately, historical calibration data can be used to inform the setpoint drift analysis, as allowed by Generic Letter 91-04, *Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle.*

The specific discussion on 95/95 criterion in Section C.6 is not consistent with the use of calibration history to inform the setpoint drift analysis, as allowed by Generic Letter 91-04, *Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle.*

Section C.6, Uncertainty Data and the 95/95 Criterion, Page 24

Modify Item (e) as follows:

> e. For channel performance uncertainty data that are typically not based on a large number of observations, such as device performance data relating to qualification type tests (e.g., digital system environmental, post-accident, or seismic conditions), the NRC staff expects

licensees and applicants to account for such values in the form of bounding estimate values, accompanied by supporting analyses that demonstrate the bounding values to be appropriate.

To encompass the small sample size environmental qualification testing required for digital I&C equipment by RG 1.209. It would be helpful to have additional discussion on what the NRC staff expects in the way of supporting analyses that demonstrate the bounding values are appropriate.

Section C.7, Setpoint Deviation: Evaluating the As-Found Setpoint, Page 25

Modify Paragraph as follows:

c. In addition to the provisions of Section 6.1 of the industry standard: If the magnitude of an observed deviation exceeds the as-found tolerance but this deviation is determined to be neither acute nor chronic and therefore to be acceptable, the basis for that determination should be justified and documented. The justification should address the magnitude of the present deviation and of past deviations, in particular addressing all relevant past deviations in excess of the as-found tolerance. The justification should include consideration of the probability that the deviation of the observed magnitude might occur in a properly functioning channel, given the properties of the associated probability distributions. The justification should also include consideration of any similar events concerning substantially similar plant devices.

It would be both impractical and inappropriate to require that all past deviations be addressed. At some point historical data loses relevance and data related to equipment that has been replaced or modified is not relevant.

Section D, Implementation, Page 28

During the August 14, 2014 public meeting NRC was asked about the implementation of the new guidance proposed in DG-1141. The NRC response was that the implementation is voluntary and it does not expect any existing licensee to use or commit to using the guidance in DG-1141, unless the licensee makes a change to its licensing basis, as stated in Section D. NRC confirmed in a clarifying question that changes to Technical Specification setpoints for whatever reason (e.g., power uprates or fuel changes) would be a basis for imposing the new guidance. The industry countered that they envision an increase in the number of cases where applicants will have to propose alternatives because of the practical constraints that exist with plant designs and equipment records. NRC should address this situation in the Section C, Staff Regulatory Guidance, since one cannot readily impose the 95/95 criteria on old installed equipment.

Section Glossary, Pages 30- 31

DG-1141 introduces new and altered terminology rather than invoking ISA 67.04 industry standard terminology. No uniform transition path to the new terminology is defined in DG-1141. Consequently, conflicting sets of definitions will necessarily introduce confusion into the industry. It is recommended that the ISA terminology should be used.