NUCLEAR ENERGY INSTITUTE

Alexander Marion
SENIOR DIRECTOR, ENGINEERING
NUCLEAR GENERATION DIVISION

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Mr. James E. Lyons
Deputy Director, Division of Licensing Project Management
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: Instrumentation, Systems, and Automation Society S67.04 Methods for Determining Trip Setpoints and Allowable Values for Safety-Related Instrumentation

The enclosed information is provided in response to your letter to me (same subject) dated March 31, 2005. It was developed by the NEI Setpoint Methods Task Force (SMTF) and represents what we believe to be a reasonable and responsive approach to resolution of the setpoints issue.

We request that NRC confirm that the concepts discussed in the enclosure provide a satisfactory basis for issue resolution. We further request an NRC/SMTF working meeting on either June 2nd or 3rd, 2005, to discuss the concepts and their translation to the Technical Specifications.

Industry has spent considerable time and effort working with NRC staff to develop a generic resolution of the setpoints issue that addresses NRC concerns. The SMTF is coordinating this generic resolution to ensure that all plants are aware of the generic issue and its potential impact. It is essential that the generic issue resolution process be applied to this TSTF and its implementation. Therefore, we request that NRC withdraw all requests for additional information (RAIs) that require operability determinations based on previous as-left conditions. It is important that NRC permit licensees with open LARs, and licensees that plan to submit LARs prior to the implementation of the generic resolution, to commit to evaluating the TSTF for plant-specific implementation after it has been approved and published by NRC.

1776 I STREET, NW SUITE 400 WASHINGTON, DC 20006-3708 PHONE 202.739.8080 FAX 202.533.0164 am@nei.org

If you have questions or require additional information, please contact me at 202.739.8080 (am@nei.org) or Mike Schoppman at 202.739.8011 (mas@nei.org).

Sincerely,

Alexander Marion

Enclosure

c: Dr. B. W. Sheron, NRC
Mr. M. E. Mayfield, NRC
Mr. C. I. Grimes, NRC
Mr. L. B. Marsh, NRC
Dr. E. M. Hackett, NRC
Mr. J. A. Nakoski, NRC
Mr. W. D. Reckley, NRC
Licensing Action Task Force Steering Group, NEI
Setpoint Methods Task Force, NEI

Introduction

The NEI Setpoint Methods Task Force (SMTF) has developed a set of concepts that will be used to prepare a Technical Specification Task Force (TSTF) Traveler for submittal to NRC. The SMTF believes that the concepts are responsive to the NRC letter dated March 31, 2005 (J. Lyons to A. Marion), on the subject of safety-related instrument setpoints and allowable values. These concepts represent a pathway toward resolution of NRC concerns about the calculation methodologies specified in ISA RP67.04. The concepts will be applied to limiting safety system setting (LSSS) values linked to safety limits as defined in 10 CFR 50.36 (typically a subset of RPS/ECCS or RTS/ESFAS).

Background

The NRC concern about the use of ANSI/ISA RP67.04 Method 3 for the calculation of allowable values has transitioned into a discussion about compliance with 10 CFR 50.36. It is our understanding that NRC plans to issue a corresponding Regulatory Issue Summary (RIS) in approximately three weeks. The RIS is expected to inform addressees of the NRC position on the requirements of Title 10 of the Code of Federal Regulations, Section 50.36, "Technical Specifications." We understand that the RIS will require no action or written response, and that any licensee action in direct response to the RIS will be strictly voluntary. The NRC staff has indicated that final resolution of the setpoints issue can be achieved without its being considered a backfit under 10 CFR 50.109. Once the RIS has been issued, the NRC has indicated that a follow-up Generic Letter may be issued to request that licensees provide information on their methods of assuring compliance with 10 CFR 50.36. During discussions with NRR staff and with NRC supervisors at the section chief level, several concepts have been identified that are of critical importance to NRC reviewers. The NRC believes that these concepts must be addressed to comply with 10 CFR 50.36.

The concepts described below address two basic NRC issues to facilitate compliance to 10 CFR 50.36. The first issue is ensuring that the Safety Limit is protected by an appropriately determined calculated trip setpoint that has an appropriate reset requirement. Following a surveillance that demonstrates that the instrument is operable, the NRC staff expects that the as-left instrument setting will be returned to the trip setpoint established to protect the Safety Limit (i.e., returned to either the Limiting Trip Setpoint, or a Nominal Trip Setpoint that is more conservative than the Limiting Trip Setpoint).

The second issue is ensuring that operability and expected performance are confirmed during performance of the surveillance tests. Using the rules of Technical Specifications (TS), OPERABILITY is confirmed at the time of surveillance performance. In the current NUREGS for Standard Technical

Specifications, this OPERABILITY verification is based on a single value (i.e., the Allowable Value) for single-column TS. Demonstration that a channel actually performs its intended safety function conservatively with respect to this value indicates that the channel is operable at the time of the test. Satisfactory performance of the surveillance requirement confirms that if an actual demand had required the channel to actuate it would have actuated to prevent the Analytical Limit and Safety Limit from being exceeded. The NRC's major concern is performance outside the expected range, in which case satisfactory completion of the surveillance requirement does not necessarily provide confidence that an instrument channel will continue to perform its intended safety function. The verification of expected instrument performance provides a level of confidence that the channel will continue to perform correctly during actual demand situations.

The following concepts will be applied in the proposed TSTF to address the NRC concerns:

1. TS Note and Bases – The Limiting Trip Setpoint shall be calculated consistent with the plant-specific methodology. The Limiting Trip Setpoint is the expected value for the trip. The as-left and as-found values may be less conservative than the Limiting Trip Setpoint by predefined tolerances (which were factored into the TSP calculation). This concept will be contained in the revised Bases discussion, and a note will be added to the TS to allow for as-found and as-left values less conservative than the Limiting Trip Setpoint, if identified in the TS. This concept is related to the NRC's Trip Setpoint/Limiting Safety System Setting concern.

2. TS Note and Bases – The as-found trip setpoint must be verified within predefined limits (double-sided limits) based on the actual expected errors between calibrations. Exceeding the as-found limit may warrant additional evaluation and potential corrective action as necessary to ensure continued performance of the specified safety function. Normally the as-found predefined acceptance criteria will be equivalent to the errors verified during the surveillance (e.g. setting tolerance, drift, and M&TE). The methodology for calculating as-found predefined limits will be contained in the revised Bases discussion. The requirement to find the trip setpoint (during required surveillance testing) within the predefined limits will be added in a note to the TS. This concept is related to the NRC's operability concern.

3. TS Note – Reset or leave the Nominal Trip Setpoint within the reference accuracy or setting tolerance at the end of every surveillance that requires setpoint verification. The ability to reset the setpoint represents continued confidence that the channel can perform its intended safety function. The requirement to reset to the as-left tolerance will be added in a note to the TS.

This concept is related to the NRC's Trip Setpoint/Limiting Safety System Setting concern.

4. TS Note and Bases – The Nominal Trip Setpoint may be set more conservative than the Limiting Trip Setpoint. If the Nominal Trip Setpoint is set more conservative than the Limiting Trip Setpoint, the predefined limits for as-found and as-left values will be maintained around the more conservative Nominal Trip Setpoint. This clarification will be added in a note to the TS and a discussion in the Bases. This concept recognizes TS requirements, operational flexibility, and current plant practices.

5. Bases – While the predefined as-found tolerance band provides one definition of operability, the Allowable Value (defined as the least conservative as-found surveillance value) still defines the maximum possible value for process measurement at which the Analytical Limit is protected. The Allowable Value verifies that the Analytical Limit and Safety Limit are still protected at the time of the surveillance. Since OPERABILITY is determined at the time of performance, the fact that the tested trip point occurred conservative to the Allowable Value ensures that at that point in time the instrument would have functioned to protect the Analytical Limit. With the implementation of these concepts, calculation of the Allowable Value using <u>any</u> of the ISA S67.04 methods is acceptable. The Allowable Value will be documented in the TS. This concept is related to the NRC's operability concern, but minimizes licensing changes. It is in accordance with the normal rules of the improved Standard Technical Specifications and is consistent with current practices.

6. Bases – Utilities may choose to maintain multiple column TS. However, the Trip Setpoint identified in the TS is expected to be the Limiting Trip Setpoint for the channel. The Limiting Trip Setpoint, if used, will be documented in the TS. This concept, which minimizes licensing changes, is in accordance with the normal rules of the improved Standard Technical Specifications and is consistent with current practices. The Bases will be clarified to provide these options.

7. Concept – not in Bases (may be a part of the TSTF traveler) –

    a. When a channel's as-found value is outside the predefined tolerance range, the channel is declared inoperable. In this case the channel does not conform to the design-basis calculation. Since the results of the surveillance do not confirm operation within the assumed design limits, there shall be an immediate determination utilizing available information to ensure confidence of performance before the channel is

declared operable. For example, this determination may include an evaluation of previous history, magnitude of change per unit time, response of instrument for reset, etc., to provide confidence that the channel is functional. The determination must conclude that the channel will perform its specified safety function. This determination, combined with resetting the trip setpoint, permits the channel to be declared operable and returned to service (i.e., declared OPERABLE). Although the specifics of the "immediate determination" process as described above will not be included in the TS or the Bases, we anticipate that NRC will expect licensees to include a commitment in setpoint-related License Amendment Requests (LARs) to implement a corresponding process. This concept is related to the NRC's operability determination concern.

b. Any degraded instrument must be entered into the licensee's "corrective action program" (or equivalent). A prompt determination is expected to validate the immediate determination (normally conducted within about 24 hours). The overall operability determination process continues to be updated as additional information becomes available.

   The prompt determination may consider factors such as:

   i. Is this a single out-of-tolerance condition for this instrument, or are there previous historical occurrences;
   ii. Is the instrument's response repeatable;
   iii. Are there any reasonable explanations for the out-of-tolerance condition, such as:

      - Extreme or seasonal ambient environmental changes (temperature, pressure, etc.)
      - Human Performance or M&TE errors during the current calibration (or previous calibrations)
      - First-time implementation of calibration with better M&TE
      - First-time pressure set or deformation on a diaphragm (for a newly installed instrument)
      - Induced errors due to response time variations of the calibration input (for example, a thermal dispersion level measurement has a faster response time going from dry to wet than from wet to dry)
      - Known physical characteristic changes due to environment (for example, a JFET transistor junction getting smaller due to continuous high temperatures)

- A 5% statistical outlier
- The uncertainty calculation has not modeled the instrument correctly, and there is usage margin that can be used to protect the AL

Although the specifics of the "prompt determination" process as described above will not be included in the TS or the Bases, we anticipate that NRC will expect licensees to include a commitment in setpoint-related License Amendment Requests (LARs) to implement a corresponding process. This concept is related to the NRC's operability determination concern.

c. The licensee's "corrective action program" (or equivalent) is used to track degraded but OPERABLE instruments. It will define the need and threshold for trending. The plant must have confidence that abnormal conditions will be identified, tracked, and appropriate action taken. The trending process will not be included in the TS, but will be used to support corrective actions associated with inoperability based on as-found values outside of tolerance. Although the specifics of the trending process as described above will not be included in the TS or the Bases, we anticipate that NRC will expect licensees to include a commitment in setpoint-related License Amendment Requests (LARs) to implement a corresponding process. This concept is related to the NRC's operability determination concern.