

## AMS Acceptance Review (AR) Questions for AR Sufficiency

- 1) Topical reports (TRs) should propose what is necessary and sufficient for achieving the stated purpose and technical findings for use by licensees in subsequent license amendment requests (LARs). NRC staff typically make findings on the technical adequacy of the framework, designs, analysis, and/or methods in a submitted TR, including the extent to which it supports compliance with regulatory requirements. These findings may include limitations and conditions of use, and/or additional site-specific actions, analyses, or methodologies that a licensee must develop and provide, to employ the TR and demonstrate compliance with applicable regulations in site-specific licensing actions.

Section 5, "Related Regulations and Standards," of the topical report (TR) states, in the context of demonstrating the compliance of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.36, that "AMS proposes to use its OLM methodology as the technical basis to support plant-specific Technical Specification changes to switch from time-based surveillance frequency for channel calibrations to a condition-based calibration frequency based on OLM results." The U.S. Nuclear Regulatory Commission (NRC) staff currently understand that the goal of this TR is for licensees to employ an OLM methodology for condition-based calibrations and add a methodology to the technical specifications (TSs) as an alternative to periodic calibration requirements. The TR could therefore be referenced by licensees in a subsequent LARs as a technical basis to modify the TSs and demonstrate compliance with applicable regulations. Alternatively, the TR could serve as a methodological framework to support a future site-specific OLM methodology that is further developed on a site-specific basis and submitted through LARs. This follows the typical use of TRs in licensing as describe above.

However, in Section 1.1, "Report Objectives," the TR states:

This report is intended to provide the NRC with the information that it needs to produce a Safety Evaluation Report (SER) to outline the regulatory requirements for OLM implementation in nuclear power plants.

The NRC does not use TRs in a licensing decision as described in this statement.

Please revise this statement that describes the general intent and expected process for licensees using and referencing this TR. Otherwise, please clarify the intended purpose and use of this TR.

- 2) Section 3, "Fundamentals of Transmitter Drift Monitoring," of the TR states:

The theoretical basis and details of OLM technology are not covered in this report, because they are available in public domain documents and open literature referenced throughout this report with a summary of each provided in Appendix D. (Note: Appendix D includes 49 references.)

Based on the 49 references, there are many combinations of approaches, methods, and analyses that could be credited in these references and applied by licensees in the Section 11 OLM methodology. It is not clear which references a licensee should technically apply or evaluate, and the process and criteria for the Section 11 OLM implementation methodology.

Please update the TR with a roadmap or explanation to clarify the basis and details of the OLM methodology for which approval is being sought.

- 3) Section 3.4, “Detecting Transmitter Failure Modes with OLM,” of the TR includes a summary of transmitter failure modes and their associated detectability. The TR currently does not address:

(a) How OLM detects the particular failure modes described (e.g., algorithm/method and acceptance criteria).

(b) How failure modes not detectable by OLM should be addressed or why it is acceptable not to address them. For example, Section 3.4.2, “Failure Modes Detectable by Response Time Testing,” of the TR states:

Also, two manufacturing defects were identified as failure modes that could affect sensor response time: low sensor fill fluid and crimped capillary lines. An analysis of these failure modes determined that they could be addressed using either post manufacturing benchtop response time testing or post-installation response time testing prior to normal operation.

However, Section 11 does not require this type of testing be performed as part of the OLM implementation methodology.

(c) The failure modes described and detected are not all the ones that could affect response time. For example, Section 3.5, “OLM and [Technical Specification Task Force (TSTF)] Options to Extend Transmitter Calibration Intervals,” states:

The noise analysis technique has been used since 2005 at the Sizewell B nuclear power plant in the United Kingdom for sensor response time testing and detection of sensing line blockages and was adopted in 2019 by SNOC at its Vogtle nuclear power stations Units 1 and 2 in connection with OLM implementation.

However, Section 11 does not require that OLM include noise analysis.

(d) The potential adverse impact of any other “devices in the channel required for channel OPERABILITY” that are included in the condition-based monitoring signal.

Please provide the above information to be used to establish a technical basis that OLM will reliably identify failures that are addressed by time-based calibration frequencies in current NRC TS.

- 4) Typically, TS controls that uses a program to control frequencies and completion times first get NRC’s approval of the methodology and propose a mark-up to the Standard TS (STS) which includes: (a) mark-ups to the TS, and (b) the addition of “Control Program” to the STS. For example:

- TSTF Traveler [TSTF-425, Rev. 3](#), “Relocate Surveillance Frequencies to Licensee Control – RITSTF Initiative 5b,” is based on [NEI 04-10 Rev. 1](#), “Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance

Frequencies.” The insert into the FREQUENCY column of the SURVEILLANCE REQUIREMENTS table generally states “[OR In accordance with the Surveillance Frequency Control Program].” The insert in Section 5 of the STS include a short Surveillance Frequency Control Program which references NEI 04-10 Rev. 1.

- TSTF Traveler [TSTF-505, Revision 2](#), “Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b,” is based on [NEI 06-09, Rev. 0-A](#), “Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines.” The insert into the COMPLETION TIME column of the ACTIONS table generally states “OR In accordance with the Risk Informed Completion Time Program].” The insert in Section 5 of the STS include a short Risk Informed Completion Time Program which references NEI 06-09, Rev. 0-A.

Contrary to this formatting convention of the STS, the AMS-TR-0720R0 generally includes an insert into the FREQUENCY column of the SURVEILLANCE REQUIREMENTS table, which states “[OR In accordance with the ONLINE MONITORING methodology approved by the NRC in TR-xxxx]” and does not include an insert in Section 5 of the STS of a short Control Program. It is generally unclear what parts of the topical report constitute “the ONLINE MONITORING methodology approved by the NRC,” which would become an obligation through this insert.

Please update the TR to clarify what parts of the topical report constitute “the ONLINE MONITORING methodology approved by the NRC,” which would become an obligation through this insert, or justify why the current mark-up TSs are acceptable.

- 5) The Section 11 of the TR is not written with a clearly stated convention for normative verb use. That is, some documents use the words “shall” and “must” to denote required or normative material, and “should” to denote a recommendation. Furthermore, some part of the TR use “is” or “are” and these could be interpreted as being normative also. It is preferable to clearly state a convention and follow it.

Assuming the TR becomes a requirement to the licensee, please update the TR to be clear on what is required and what is not required, and what are optional practices that should be considered or employed.