

## **The Industry Need for Updated Gamma Spectroscopy Guidance**

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Existing standards providing guidance for gamma spectrometry largely provide examples of geometry calibrations that depend upon traceable reference materials in defined geometries. With the marked expansion of gamma spectrometry applications outside of the laboratory, it is not practicable to obtain traceable standards in non-laboratory geometries for efficiency calibrations. With the advent of sourceless efficiency calibration technology over the last several decades and the abundance of research papers and reports attesting to the equivalence of sourceless calibrations, it is time to fully endorse the practice of using MCNP based methods to perform efficiency calibrations using software, without the need for verifications using traceable reference materials in cost prohibitive geometries. Where sourceless calibrations can be verified in the laboratory geometries, they should continue to be tested in order to refine the model. Arguably, gamma spectrometry systems used in in-situ measurements need only be energy calibrated and efficiency calibrations, beyond those modeled using sourceless calibrations are not required. Furthermore, beyond energy calibrations and routine QC checks, gamma spectroscopy systems do not require any annual or other routine calibration. Several current gamma spectrometry standards from ASTM, ANSI and ISO are reviewed and compared for compatibility with the state-of-the-art sourceless calibration software applications and recommendations are provided for improvements to the standards.