

New Radiochemistry Tools and Training Support the Implementation of the Revised 2016 TNI Standard

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History of the TNI Standard

Consensus standards assuring the quality of measurement data used for environmental decision making are always being improved.

Since the 2003 National Environmental Laboratory Accreditation Conference (NELAC) Standard was approved almost 15 years ago, the NELAC Institute (TNI) has revised the document twice, in 2009 and 2016. The [TNI Environmental Laboratory Sector Standard](#) (formally the *NELAC Standard*) expands on an international standard that is used by laboratories to develop their management system for quality, administrative and technical operations, ISO/IEC 17025 (*General Requirements for the Competence of Testing and Calibration Laboratories*). While the TNI Standard's management/quality system requirements generally parallel those of the ISO/IEC standard, it also specifically addresses environmental testing and establishes requirements for technical areas, such as radiochemistry.

Prior to the TNI Standard, the [US Environmental Protection Agency \(EPA\) Drinking Water Laboratory Certification Program](#) was the only national environmental laboratory certification/accreditation program for radiochemistry. The TNI Standard fills a gap by defining a management/quality system that extends beyond [Safe Drinking Water Act](#) compliance testing to address a broad range of environmental matrices and measurement techniques routinely performed by environmental radiochemistry testing laboratories.

Radiochemistry in the TNI Standard

For the first ten or so years of its existence, the TNI Standard was maintained by a committee of quality systems experts. While the committee had extensive experience in quality assurance, their radiochemistry background was relatively limited. In 2012, TNI established a Radiochemistry Expert Committee that was charged with maintaining Volume 1, Module 6 of the TNI Standard. The Committee worked over the next two years to revise this radiochemistry module; the updated module was approved by TNI in 2015 and will be implemented as part of the 2016 TNI Standard. The revision more clearly, consistently and completely addresses radiochemistry measurements and provides flexibility to support a variety of environmental programs and matrices. A webinar, "[The New TNI Radiochemistry Standard](#)," is available at the TNI website that describes changes between the 2009 and 2016 TNI Standards.



Albuquerque trainees discuss radium-228 data in small groups. (Photo credit: Ilona Taunton, The NELAC Institute)

The TNI Radiochemistry Expert Committee is also developing tools and training to support [National Environmental Laboratory Accreditation Program](#) (NELAP) accreditation bodies and laboratories as they implement the 2016 TNI Standard. Most of these tools will benefit non-NELAP entities, as well. A checklist tailored to the new standard will be available for assessors to use in preparing and performing laboratory assessments and will also help laboratories ensure that they adequately implement the TNI Standard. The committee also recently completed a radiochemistry chapter in the *TNI Small Laboratory Handbook*. Although the handbook targets small laboratories, it will be equally informative for large radiochemistry laboratories, assessors and anyone interested in understanding radiochemical measurement quality. A series of five 6-8-hour technical radiochemistry training courses will be offered to assessors and laboratories. The first of these, "Understanding Radiochemistry Testing and the TNI 2016 Standard – EPA Method 904.0," was just completed at TNI's Semi-Annual Meeting: Forum on Environmental Accreditation in Albuquerque, New Mexico and will be available in March 2018 as a recorded webcast on TNI's website. The class describes the radiochemical separations and gas-flow proportional counting measurement techniques used to determine radium-228 in drinking water. EPA's Method 904.0 was selected for the initial training round because it touches most every aspect of radiochemical measurements using gas flow proportional counting. The series will continue this summer at the [2018 National Environmental Monitoring Conference](#) (August 6-10, New Orleans) with full-day training on liquid scintillation spectrometric determinations of tritium in water and gross alpha and beta (ASTM 7283/SM 7110D). Technical training classes at three subsequent TNI meetings will address gamma spectrometry and alpha spectrometry methods as well as laboratory-developed methods. Continuing education credits will be available for successful completion of the training classes.

Learn More

The tools and training webinars can be accessed within the training tab of the [TNI website](#). Please contact Ilona Taunton at ilona.taunton@nelac-institute.org if you have any questions.