

Quality Control of a New Uranium Bioassay Method

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The LLNL Bioassay Program analyzes more than a hundred urine samples for uranium each month. To speed the analyses, a microwave digestion method followed by ICP-MS analysis was developed at LLNL. The ICP-MS analysis is fast, has fewer interferences, is isotope specific and is more sensitive. This method replaced KPA as the routine uranium analytical method used in our lab. The development work was presented at the 44th BAER conference in Albuquerque.

We have been using this method for all samples for the last 2.5 years. As a continuing validation of the method and its results, we use both an internal and an external quality control program. Blanks, duplicate samples, spiked samples and blind samples are analyzed in our internal quality control program. Performance evaluation samples from ORNL and DOELAP samples are analyzed as an external quality control program. Results of these QC efforts will be presented. Calculation of control limits and preparation of QC charts will be discussed. Some problems encountered with data quality during method development and resolution of these problems will also be discussed.