



Memorandum

Date: December 12, 2023
To: Regulated community water systems, Laura Carusona, Drinking Water Manager
From: Carling Olson
Subject: Radionuclides Guidance: Uranium analysis and Adjusted Gross Alpha calculation

Issue:

ADEQ has noticed a discrepancy in the Adjusted Gross Alpha data between two analytical methods of the same source of water. Both methods (200.8 and D6239-09) are approved to use per the Code of Federal Regulations. Based on the two different calculations generating different results, one result is showing an MCL exceedance and one not for the same source of water.

ADEQ invited all of the relevant subject matter experts (ADEQ, EPA region 9, Radiation Safety Lab director) together in the same meeting on 12/11/2023 to discuss how we should determine which results to use and how to direct the laboratories to calculate the results so that there is consistency.

Discussion:

Uranium methods 200.8, D6239-09, and method 908 are all valid and approved methods used to determine the Uranium content in Drinking Water samples. 200.8 only provides information for the mass content, which provides heavy metal data that the Radionuclides rule is concerned with, according to EPA region 9 contractor, Robert Rosson. Method 908 provides more information regarding the mass and activity, but has an iron interference which is very likely in the Arizona samples due to water hardness. D6239-09 is the most accurate, albeit most expensive, method which provides mass and activity data as it relates to the Arizona geology, not found in other states. This method takes the activity of each Uranium isotope into account when calculating the total, which is used in the Adjusted Gross Alpha calculation. This allows the most complete and accurate depiction of if there is an exceedance of Gross Alpha in a sample.

Recommendation:

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The recommendation made by the SME meeting attendees is to continue to allow the cheaper 200.8 method for Uranium. However, this method's results should be used as a screening level. If the Adjusted Gross Alpha result, using this method, is at or above the MCL of 15 pCi/L, it is highly recommended that the system gets the sample re-analyzed, or a resample analyzed, by a laboratory using the D6239-09 method to make the final compliance MCL determination.

Though this method can be costly, it is less costly than installing and maintaining a treatment plant that may not be needed, which would be shown with the more accurate data.

If the system refuses to get the additional analysis, the MCL violation would be determined with the data provided and the system would be required to pursue treatment options.

ADEQ G. Alpha/Uranium MCL Decision Tree

