

Drinking Water Information Letter 1/2012

Analysis of drinking water for metals

Purpose

1. This letter sets out the requirements for the analysis of drinking water samples for total metals that will come into force on January 1, 2013.

Scope

2. The scope of this letter is confined to those parameters classified as metals that require to be analysed for in accordance with the terms and conditions attached to an Approval; a Code of Practice; or the Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems (2006) dealing with a drinking water facility. This letter does not affect with any other water-related analysis e.g. as set out in Groundwater Information Letter 1/2012 "Analysis of Groundwater Samples for Metals"

3. The letter sets out the requirements under the authority provided in sections 17(2)(f) and (h) of the Potable Water Regulation for the handling of samples and analysis for metal parameters that may be present in drinking water samples. Authority for Directors to issue a notice is given in section 17(2).

4. Approval holders (including registration holders) who are responsible for procuring laboratory services are required to ensure that the requirements set out in this letter are met for all drinking water samples analysed for any metal parameter where the sample has been taken **on or after January 1, 2013**.

Background

5. Drinking water parameters classified as metals in the Guidelines for Canadian Drinking Water Quality (GCDWQ) must be analysed for the presence of total metals.

6. This letter sets out the analytical requirements for the detection of total metals in drinking water samples and the requirements to be followed in preserving drinking water samples that will subsequently be analysed for total metals.

Detail

(i) Total Metal Analysis

7. Total metals are defined as “the concentration of metals in solution after treatment of an unfiltered sample with hot dilute mineral acid” (Section 3010A(3(c), Standard Methods for the Examination of Water and Wastewater, 22nd Edition, APHA, AWWA, WEF, 2012, hereafter “The Standard Methods”).

8. For laboratories analysing metals by Inductively Coupled Plasma/Mass Spectroscopy (ICP/MS) the procedure set out in Section 3030E of The Standard Methods should be followed except where silver or antimony is being analysed for in which case the procedure set out in Section 3030F should be followed. Further details on the procedure can be found in The Standard Methods and ISO 15587-2¹.

9. For laboratories analysing metals by Flame Atomic Absorption Spectroscopy then the relevant section of The Standard Methods should be consulted depending on the precise configuration of the instrument and the planned digestion method should be confirmed, in the first instance, with the Drinking Water Specialist, Alberta Environment (see below for details).

(ii) Sample Preservation Requirements

10. Drinking water samples requiring analysis for total metals should be preserved according to Section 3010B of The Standard Methods. The requirements set out in Section 3010B in relation to sample containers, preservation procedures and storage procedures for samples should be followed. General advice on the preservation and handling of water samples can also be found in ISO 5667-3².

Enquiries

11. Enquiries on this letter should be addressed to the Drinking Water Specialist, Regional Integration Branch, Alberta Environment and Water (Dr Donald Reid, Donald.Reid@gov.ab.ca, telephone number 780-644-8061)

¹ ISO 15587-2 Water Quality – Digestion for the determination of selected elements in water. Part 2: Nitric Acid Digestion. ISO, 2002.

² ISO 5667-3 Water Quality – Sampling – Part 3: Guidance on the preservation and handling of water samples. ISO, 2003.