

Drinking Water Information Letter 1/2015

Cyanobacterial toxins in drinking-water – use of the parameter Total Microcystin to replace Microcystin-LR and adjusted guideline value for cyanobacterial toxins

Purpose

1. This Information Letter provides interim guidance on the analytical requirements for microcystin-LR in drinking-water and the adjusted guideline value for cyanobacterial toxins, until the Health Canada Guideline for Drinking Water Quality regarding cyanobacterial toxins is revised and published.

Scope

2. This letter relates to the drinking-water quality parameter microcystin-LR and the analytical and reporting requirements for waterworks systems regulated under the Environmental Protection and Enhancement Act (EPEA).

Background

3. As requested by the Federal-Provincial-Territorial Committee on Drinking water (CDW), in April 2012, Health Canada wrote to all members of the CDW to update the interpretation of the current Guideline for Canadian Drinking Water Quality for cyanobacterial toxins. The intent of the current guideline is to be protective against total microcystins. The letter, reproduced as Annex A, makes this interpretation very explicit. This Drinking Water Information Letter provides notice of the updated interpretation from Health Canada until such time as the guideline for cyanobacterial toxins is revised.
4. In June 2015, Health Canada wrote to members of the CDW to provide updated advice on the guideline statement to be applied to total microcystins. This letter is reproduced as Annex B.

Detail

5. Following Health Canada's recommendation to continue to use the guideline value of **0.0015 mg/L (1.5 µg/L) for microcystins as total microcystins, rather than the more restricted microcystin-LR**, Alberta Environment and Parks, when reviewing reports from drinking-water systems required under the terms and conditions of their Approval or Code of Practice, will adopt this recommended approach from July 1, 2015 until such time as the revised Guideline for Canadian Drinking Water Quality for cyanobacterial toxins is published by Health Canada.

6. Attention is drawn to the statement in Health Canada's letter of June 17, 2015:

"Because of the increased exposure of infants relative to body weight, as a precautionary approach during a cyanobacterial bloom, or when microcystins are detected in finished water, drinking water authorities should consider informing the public in the affected area [so] that an alternative suitable source of drinking water (such as bottled water) should be used to reconstitute infant formula"

Where the drinking water system considers such actions necessary, Alberta Environment and Parks and Alberta Health Services should be consulted before any communication is issued.

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7. The intent of this update, of moving to “Total” microcystins, from the current guideline referencing **microcystin-LR** only, is to be more protective of public health against microcystin toxins.

Enquiries

8. Enquiries on this Drinking Water Information Letter should be addressed to the Drinking-Water Quality Regulator, Dr. Donald Reid, at donald.reid@gov.ab.ca, or 780-644-8061.

ANNEX A



Health
Canada

Healthy Environments
and Consumer Safety
Branch

Santé
Canada

Direction générale,
Santé environnementale et
sécurité des consommateurs

Your file Votre référence

Our file Notre référence

Water, Air and Climate Change Bureau
Safe Environments Directorate
269 Laurier Ave West
Address local 4903D
Ottawa, Ontario, K1A 0K9

April 5, 2012

Members of the Federal-Provincial-Territorial Committee on Drinking Water

Subject: Guideline for cyanobacterial toxins in drinking water

Dear CDW members,

The Guideline for Canadian Drinking Water Quality for cyanobacterial toxins was established in 2000 as a maximum acceptable concentration (MAC) of 0.0015 mg/L (1.5 µg/L) for microcystin-LR. The guideline was deemed to be protective of human health against exposure to other microcystins (total microcystins). However, it was based on the risk assessment of microcystin-LR, the most frequently encountered and the only cyanobacterial toxin for which sufficient toxicological and epidemiological data was available at the time of the review. Limited scientific data (e.g., LD₅₀ data and very few animal bioassays) for the other microcystin variants also suggest that microcystin-LR is the most toxic variant. The guideline was considered to be conservative, as it was established assuming daily exposure to microcystin-LR over a lifetime. In reality, exposure to cyanobacterial toxins is much less frequent and would only occur sporadically during the warm water season (3 to 5 months per year).

Significant advances in analytical methods for the various cyanobacterial toxins, including the development and availability of field test kits, have been made since the publication of the existing guideline. As other toxins are increasingly being found in Canada, Health Canada considers that applying the existing guideline to total microcystins instead of a single variant would increase health protection.

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Based on increased frequency and locations of reported cyanobacterial blooms in Canada, as well as the availability of new scientific research (particularly in terms of treatment and analytical methodologies), cyanobacterial toxins have been placed on CDW's priority list for guideline development. Health Canada has initiated a review of the science (toxicological and epidemiological studies) as well as analytical and treatment technologies. This review of cyanobacterial toxins will include microcystins, anatoxins and cylindrospermopsin.

Until such time as the review is complete and the revised Guideline Technical Document published (expected in 2014), Health Canada continues to support the current guideline value of 0.0015 mg/L (1.5 µg/L) for microcystins, and recommends it be used as a guideline for total microcystins instead of only for microcystin-LR.

I hope this information proves useful.

Yours sincerely,

Original signed by

John Cooper
Director

ANNEX B



Water and Air Quality Bureau
Safe Environments Directorate
269 Laurier Ave West
Address locator 4903D
Ottawa, Ontario, K1A 0K9

June 17, 2015

Members of the Federal-Provincial-Territorial Committee on Drinking Water (CDW)
Members of the Interdepartmental Working Group on Drinking Water (IWGDW)

Subject: Guideline for cyanobacterial toxins in drinking water

Dear colleagues,

The current Guideline for Canadian Drinking Water Quality for cyanobacterial toxins was established in 2002 as a maximum acceptable concentration (MAC) of 0.0015 mg/L (1.5 µg/L) for microcystin-LR, and was deemed to be protective of human health against exposure to total microcystins.

Health Canada and the Federal-Provincial-Territorial Committee on Drinking Water are in the process of revising the Canadian guideline for cyanobacterial toxins in drinking water. The proposed guideline is a seasonal maximum acceptable concentration (MAC) of 0.0015 mg/L (1.5 µg/L) for total microcystins. During its May 2015 meeting, CDW approved the proposed guideline and guideline technical document for public consultations.

Since public consultation on the draft guideline is not anticipated until December 2015, Health Canada is informing you, as the drinking water authorities, to consider using the proposed guidance in the consultation draft during the 2015 algal bloom season. Although science indicates that the young are less sensitive to the effects of microcystins than adults, there are no studies conducted specifically on sensitivity of infants. As a result, the proposed guideline statement includes precautionary advice for consideration by drinking water authorities concerning the protection of infants, which should be considered based on operational efficiency of the treatment plant and the reliability of individual systems:

A seasonal maximum acceptable concentration of 0.0015 mg/L (1.5 µg/L) is proposed for total microcystins in drinking water. This guideline is considered to be protective of the general population, including young children. Because of the increased exposure of infants relative to body weight, as a precautionary approach during a cyanobacterial bloom, or when microcystins are detected in finished water, drinking water authorities should consider informing the public in the affected area that an alternate suitable source of drinking water (such as bottled water) should be used to reconstitute infant formula.

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The addition of precautionary advice for infants is a result of the collaborative assessment undertaken by Health Canada and the United States Environmental Protection Agency. The above supplementary advice will be formally reviewed as part of the public consultation on the draft guideline targeted for December 2015.

As part of its on-going guideline review process, Health Canada will continue to monitor new research in this area and recommend any change(s) to the guideline it deems necessary.

I hope this information proves useful.

Yours sincerely,

Original signed by

John Cooper
Director

cc. Members of the Federal-Provincial-Territorial Committee on Health and Environment