

MINISTRY OF ENVIRONMENT
Water Protection & Sustainability Branch
Source Drinking Water Quality Guideline Update Summary

August 10, 2016

The Source Drinking Water and Recreation Water Quality Guidelines (WQGs) have been updated as part of the 2016 human health WQGs update. The Irrigation WQG for ready-to-eat crops as well as the fish tissue consumption guidelines are being reviewed and will be updated at a later date.

As the Recreation WQGs are directly adopted from Health Canada, only the Source Drinking WQGs are provided here for review.

Many of the BC ambient water quality guidelines (WQGs) for human health were published in the 1980's and 1990's. The numeric values or narrative statements in this document are the most up to date source drinking WQGs for BC and replace the source drinking WQGs and recreation WQGs in BC WQG technical and overview documents.

BC has 2 ways of developing ambient WQGs for drinking water sources:

- adoption of Health Canada's Guidelines for Canadian Drinking Water Quality;
- development of a provincial guideline when none are available from Health Canada, or when only an operational treatment guideline is available. In these cases, ENV collaborates with HLTH and other pertinent groups to develop an appropriate guideline.

In this update, one of four options occurred for each water quality parameter:

- 1) No change to guideline.
- 2) Guideline updated: New science resulted in a WQG being adopted from Health Canada or developed by ENV. An arrow in the "2016 Update" column indicates if the guideline value has increased or decreased.
- 3) New guideline: WQG has not been previously adopted from Health Canada or developed by ENV. Some of these new parameters already have BC aquatic life WQGs.
- 4) Guideline archived: Guideline is no longer needed or relevant for BC.

The following tables highlight the changes made to BC's source drinking WQGs.

DRINKING WATER SOURCES

Table 1. BC water quality guidelines and updates for drinking water sources.

Parameter ¹	MAC ²	AO ³	Guideline Source (approved, reaffirmed)	2016 Update (↑↓) ^{4 5}
Aluminum	9.5 mg/L	N/A	ENV 2010	Updated (↑) from HC's operational treatment guideline to interim standard from Land Remediation.
Arsenic	Archived	N/A	ENV 2001	Health Canada only has operational treatment guideline
Benzene	5.0 µg/L	N/A	Health Canada 2009	No change
Benzo[a]pyrene (Polycyclic Aromatic Hydrocarbon)	0.01 µg/L	N/A	Health Canada 1988, 2005	No change
Boron	5.0 mg/L	N/A	Health Canada 1990	No change
Cadmium	5.0 µg/L	N/A	Health Canada 1986, 2005	New for DW use in BC.
Chlorate	1.0 mg/L	N/A	Health Canada 2008	No change
Chloride	N/A	250 mg/L	Health Canada 1979, 2005	No change
Chlorophenols:				
<i>Monochlorophenol</i>	N/A	0.1 µg/L	ENV 1997	No change
<i>2,4-dichlorophenol</i>	0.9 mg/L	0.3 µg/L	Health Canada 1987, 2005	No change
<i>Total Dichlorophenols</i>	N/A	0.3 µg/L	ENV 1997	No change
<i>2,4,6-trichlorophenol</i>	5.0 µg/L	2.0 µg/L	Health Canada 1987, 2005	No change
<i>Total Trichlorophenols</i>	N/A	2.0 µg/L	ENV 1997	No change

¹ Metal guidelines are based on **total** concentrations

² Maximum acceptable concentration

³ Aesthetic objective

⁴ HC = Health Canada

⁵ DW = Drinking Water

Parameter ¹	MAC ²	AO ³	Guideline Source (approved, reaffirmed)	2016 Update (↑↓) ^{4 5}
2,3,4,6-tetrachlorophenol	0.1 mg/L	1.0 µg/L	Health Canada 1986, 2005	No change
Total Tetrachlorophenols	N/A	1.0 µg/L	ENV 1997	No change
Pentachlorophenol	0.06 mg/L	0.03 mg/L	Health Canada 1987, 2005	No change
Colour, True	N/A	15 TCU	Health Canada 1979, 2005	No change
Copper	N/A	1.0 mg/L	Health Canada 1992	No change
Cyanide	0.2 mg/L	N/A	Health Canada 1991	No change
Cyanobacterial Toxins: Microcystin-LR	1.5 µg/L	N/A	Health Canada 2002	New for DW use in BC.
Diisopropanolamine (DIPA)	21 mg/L	N/A	ENV 2003	No change
Ethylbenzene	0.14 mg/L	1.6 µg/L	Health Canada 2014	Updated (↓)
Fluoride	1.5 mg/L	N/A	Health Canada 2010	No change
Iron	N/A	0.3 mg/L	Health Canada 1978, 2005	New for DW use in BC.
Lead	0.01 mg/L	N/A	Health Canada 1992	Updated (↓)
Manganese	N/A	0.05 mg/L	Health Canada 1987	New for DW use in BC.
Mercury	1.0 µg/L	N/A	Health Canada 1986	No change
Methyl Tertiary-Butyl Ether (MTBE)	N/A	0.015 mg/L	Health Canada 2006	Updated (↓)
Microbial Indicators:				
<i>Fecal coliforms</i>	Archived	N/A	ENV 1988	Not the current recommended indicator
<i>Escherichia coli</i>	Narrative guideline	N/A	ENV 2016	Updated with a narrative guideline. Health Canada only has microbiological treatment guidelines.
<i>Enterococci</i>	Narrative	N/A	ENV 2016	Updated with a narrative

Parameter ¹	MAC ²	AO ³	Guideline Source (approved, reaffirmed)	2016 Update (↑↓) ^{4 5}
	guideline			guideline. Health Canada only has microbiological treatment guidelines.
Molybdenum	0.25 mg/L	N/A	ENV 1986	No change
Nitrate	45 mg/L (nitrate) 10 mg/L (nitrate-N)	N/A	Health Canada 2013	No change
Nitrite	3.0 mg/L (nitrite) 1.0 mg/L (nitrite-N)	N/A	Health Canada 2013	No change
Organic Carbon, Total	4.0 mg/L	N/A	ENV 1998	No change
Phosphorus, Total	N/A	0.01 (lakes)	ENV 1985	No change
pH	Archived	N/A	ENV 1991	Health Canada has operational treatment guideline. ENV 1991 guideline pertains to disinfection only treatment requirement.
Selenium	0.01 mg/L	N/A	ENV 2014	No change
Sulfolane	0.27 mg/L	N/A	ENV 2003	No change
Sulphate	N/A	500 mg/L	Health Canada 1994	No change
Temperature	N/A	15°C	Health Canada 1979, 2005	No change
Toluene	0.06 mg/L	0.024 mg/L	Health Canada 2014	New MAC for DW use in BC.
Turbidity	See Table 2	N/A	ENV 1997	No change
Xylenes, Total	0.09 mg/L	0.02 mg/L	Health Canada 2014	New for DW use in BC.
Zinc	N/A	5.0 mg/L	Health Canada 1979, 2005	No change

Table 2. BC turbidity water quality guidelines and updates for drinking water sources.

Background Turbidity	Guideline	2016 Update (↑↓)
Source water with exceptional clarity, natural background levels \leq 5 NTU	Induced turbidity should not exceed 1 NTU at any time	No change
Natural background turbidity is $>$ 5 and $<$ 50 NTU	Induced turbidity should not exceed 5 NTU at any time	No change
Natural background turbidity is $>$ 50 NTU	Induced turbidity should not exceed 10 % of background	No change

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