CONSULTATION ON A TECHNICAL DOCUMENT ABOUT ENTERIC PROTOZOA IN DRINKING WATER

Prepared By
Federal-Provincial-Territorial Drinking Water Committee
– Health Canada

CWWA supports the proposed Guideline for enteric protozoa. The proposed recommendation of a minimum 3-log removal is both attainable for water treatment facilities and protective of human health.

The supporting documentation which presented technologies for the removal and/or inactivation of cysts and oocysts will help in the design and the operation of treatment plants whereas the comments about watershed protection, meteorological conditions and QMRA should help focus on the multiple barrier approach which is essential to control the concentration of contaminants at the raw water intake.

CWWA does have a few concerns regarding the proposed Guideline, which are detailed below.

The Guideline states :

> "Where treatment is required for enteric protozoa, the proposed guideline for *Giardia* and *Cryptosporidium* is a health-based treatment goal of a **minimum 3-log removal and/or inactivation of cysts and oocysts**. Depending on the source water quality, a greater log removal and/or inactivation may be required. Treatment technologies and watershed or wellhead protection measures known to reduce the risk of waterborne illness should be implemented and maintained if source water is subject to faecal contamination or if *Giardia* or *Cryptosporidium* has been responsible for past waterborne outbreaks."

This could be problematic for some utilities, due to varying jurisidictional requirements. Ontario for example, requires 3 log removal for giardia but only 2 log removal for cryptosporidium. Also, some jurisdictions provide log credits depending on what treatment is used (ie: filtration or UV disinfection), which makes compliance difficult to measure across all jurisdictions, and makes defining log removal difficult.

We note that the health-based treatment goal for enteric protozoa is based upon the application of the Quantitative Microbial Risk Assessment approach. As such these should be explicitly stated in the Guideline statement

Section 1.0

> "Treatment technologies and watershed or wellhead protection measures known to reduce the risk of waterborne illness should be implemented and maintained if

source water is subject to faecal contamination or if Giardia or Cryptosporidium has been responsible for past waterborne outbreaks."

Source water protection is an important step in ensuring water quality and should be implemented by all utilities if there is a risk of contamination even in the absence of past outbreaks or contamination. This paragraph suggests that only those utilities who have experienced contamination should implement source protection.

Section 2.3

Source water assessments should be performed to include the wide range of seasonal and other conditions experienced to give an accurate evaluation of protozoa presence and levels.

Section 5.3

The Guidance document recommends monitoring for E. Coli, as an indicator for the potential presence of protozoans. While E. Coli can indicate the potential presence of fecal contamination and presence of protozoans, it's absence does not correlate with the absence of protozoans. While there is no proven indicator for protozoa contamination, the recommendation to rely on E. Coli is not adequate.

Section 9.0 Risk Assessment

In general, this a very good section, however, there is no mention of the amount of parasite data that would be acceptable/not acceptable for a QMRA approach. It would seem for those municipalities/utilities that would like to take this approach; some sort of guideline associated with data quantity and quality would be helpful.

Comments as submitted by Pierre-André Côté – former Chair, Drinking Water Quality Committee – primarily editorial comments on French text.

CONSULTATION
ON
A TECHNICAL DOCUMENT
ABOUT
ENTERIC PROTOZOA IN DRINKING WATER
PREPARED BY
THE DRINKING WATER COMMITTEE – HEALTH CANADA

A member of our Drinking Water Quality Committee, Pierre-André Côté has submitted the following comments on the French version of the Guideline. Some of the comments will be made only once although they apply in other sections of the PDF document.

The family of words “réduire” and “réduction” are ambiguous because in the field of chemistry, they are the opposite of “oxyder” and “oxydation”. Therefore, it is recommended that the words “diminuer” and “diminution” should be used in the text.

It is recommended that the words “estimation” and “estimer” should be replaced by “évaluation” and “évaluer”. However, since the word “évaluation” is already present in the Guideline, it is recommend the use of “caractérisation” in place of “évaluation” where it is already present in the Guideline.

The attached table presents comments/suggestions for all the Sections.

TABLE OF COMMENTS AND SUGGESTIONS

ABOUT THE GUIDELINE ON ENTERIC PROTOZOA IN DRINKING WATER

Section	Page	Parag.	Line	Comment/suggestion
1.0	2	1	7	…leur efficacité à **diminuer**…; the term « réduire » is ambiguous since in the field of chemistry, « to reduce » or « reduction » refers to the opposite of « oxidation »; that adjustment could be done elsewhere in the text where the words « réduire » and « réduction » are written
2.0	2	2	7	…correspondant à une **diminution**…
2.3	3	1	10	…peut effectuer une **évaluation**…oocystes. Les **évaluations**…..issue de la **caractérisation**…The word « caractérisé » is used at the beginning of the next paragraph.
2.3	4	2	5	…pour **réduire…**
2.3	4	3	5	…**peuvent être utilisés…**
3.0	4	Remarque	1	…instructions **particulières…**
3.0	5	2	7	…des **stations**.d'épuration…The term « station » is used elsewhere in the Guideline (see Table 4 and 5, for instance)
3.0	5	4	9	How can it be « impossible » to sample and analyze protozoa in a raw water? Previously, it was mentioned that a « regular evaluation » could be impossible for small systems, which is understandable. But, how can it be « impossible »?
3.0	5	4	11-12	The word « estimation » should be replaced by « évaluation » and « évaluation » should be replaced by « caractérisation », as above in section 2.3, page 3. That same remark applies to section 7.1.1, parag. 2, line 12.
3.0	5	4	13	…qui **peuvent renseigner**…
3.0	5	4	16	…de la **station** de traitement…
3.0	5	5	2	…**utilisée avec l'information**…
5.0	14	Tableau 4	Note b	…il est **possiblement** inapproprié de…
5.0	14	Tableau 4	Note c	…les mesures en **nombre/unité**… This suggestion applies to note c) below Table 6
5.0	14	1	5	….**se soit** produit à Edmonton…
5.1.2	15	1	2	(et **possiblement** plus longtemps)
5.1.3	15	2	10	Il est **vraisemblable…**
5.2.1	19	1	9	…eaux usées **épurées…**
5.2.1	20	2	8	…**se soit** produit…

5.2.2	20	2	7	…ne représentent **possiblement** pas un risque…
5.3.1	22	2	5	…, **en tenant compte de** la qualité de la source d'eau..
7.0	31	1	4	..concentration résiduelle de **désinfectant**, etc.
7.0	31	1	7	Could it be possible to be more specific about the term « adéquate » in both the French and English Guideline? Would the terme « **suffisante** » be preferable?
7.0	31	3	9	…et **d'épuration** des eaux usées…
7.0	31	5	7	une **station** de traitement
7.1.1	32	1	7	…10^{-6} **année** de vie **corrigée…** since it is such a small number
7.1.1	32	2	8	How can it be **« impossible »** to sample and analyze for Protozoa?
7.1.2.1	33	1	16	dans la **station de traitement**
7.1.2.2	34	1	3	The numbers 10^{7} and 10^{8} are not concentrations. What is the volume?.
7.1.2.3	34	1	1	Dans les **stations** de traitement…
7.1.3.2	36	1	13	…effectuer une **évaluation…**
7.1.3.2	36	1	16	…réelles de la **station.**
7.1.3.2	37	3	3 et 12	…un **désinfectant résiduel…**
7.1.5	39	1	14	..à la prise d'eau **de** l'effluent…
9.2	47	4	7	…et **possiblement** de…
9.3.4	52	Figure 1		In the figure, oocyst should be written « **oocyste** » as it is elsewhere in the Guideline and not in the plural form « oocysts » when the numbers are smaller than one. This also applies to Figure 3 for the « kystes » when the numbers are smaller than one.
9.3.4	53	1	2	…la **station** de traitement**..**
10.0	57	1	10	…**physico-chimique…**
10.0	57	3	6	…**station**…
10.0	57	4	4	…**station…**