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Rosebery
NSW 2018
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Application to adopt limits in the Australia New Zealand Food Standards Code (the Code) for certain substances in packaged water to reflect the current limits in place in International Standards.

Applicant Details

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Application procedure – General Procedure

This application is supported by member bottlers of the Australasian Bottled Water Institute (ABWI) and is also supported by the Australian Beverages Council (ABCL).

Nature of the application

This application is:-

- (a) seeking an amendment to Standard 2.6.2 Non-Alcoholic Beverages and Brewed Soft Drinks of the Australia New Zealand Food Standards Code;

- (b) being made on behalf of ABWI members who are water bottlers and suppliers in Australia, New Zealand and the South Pacific Islands. A list of ABWI members is attached as **Appendix 1**.

Executive Summary

The Australasian Bottled Water Institute (ABWI) is the peak industry body and certifying operation for water bottlers and suppliers in Australia, New Zealand and the South Pacific Islands. ABWI's primary goal is to expand awareness of bottled water and to enable consumers to enjoy safe, high quality, good tasting bottled water. ABWI membership is made up of large and small producers of packaged water and suppliers to those companies.

ABWI is seeking to amend Standard 2.6.2 of the Australia New Zealand Food Standards Code (the Code) to reflect international Standards, by adopting those limits listed in the World Health Organisation's (WHO) Guidelines for Drinking Water Quality 2008¹.

Part A: General Information

Details of the application

ABWI is proposing that a series of amendments be made to the Code (Standard 2.6.2) to include maximum limits for organic compounds and the alignment of chemical limits for inorganic compounds based on the WHO guideline values for chemicals that are of health significance in drinking water in order to harmonise with contemporary international standards, by adopting those limits specified in the World Health Organisation's (WHO) drinking water guidelines.

Currently the FSANZ Food Standards Code does not specify individual maximum limits for organic compounds. ABWI's voluntary Industry Model Code, which is a strict set of standards for the safe processing of bottled water, lists maximum contaminant levels for a number of organic substances in addition to inorganic substances. Within the WHO Drinking Water Quality Guidelines, a number of organic and inorganic substances are listed and the guideline value which are of health significance in drinking water. ABWI would therefore like to see the introduction of maximum limits for organic compounds and the alignment of chemical limits for inorganic compounds as per WHO in packaged water to standard 2.6.2 for the safe bottling of water.

¹ World Health Organisation's (WHO) Guidelines for Drinking Water Quality 2008. 2nd Addendum to the 3rd Edition. Annex 4 (Chemical Summary Tables). Table A4.3 Guideline values for chemicals that are of health significance in drinking-water.

1. Purpose of the proposed amendments

ABWI believes that bottled water in Australia and New Zealand should be of the same quality as any other bottled water across the globe and comply with the same regulatory limits as set by the national regulatory body, FSANZ, as those set internationally. Therefore, the Institute feels the standards set out in the Code should be reflective and in alignment of the limits referenced in the WHO Drinking Water Quality Guidelines.

Establish need for the application

The ABWI Technical Standards Committee, on behalf of the bottled water industry has requested ABWI to seek amendments to the Code to bring the limits in packaged water into alignment with the World Health Organisation Drinking Water Guidelines. This will ensure As Low as Reasonably Achievable Limits (ALARA) in bottled water whilst protecting public health and safety. The stated purpose behind this Application is to ensure public health and safety, by providing the same limits for inorganic substances in packaged water as those specified by the World health Organisation, which is practically achievable by the industry.

The inclusion of such limits will also enhance the ability of the industry to compete in global export markets.

2. Justification for the application

- (a) The bottled water produced by ABWI members must meet ABWI's strict set of voluntary Industry standards (laid out in the ABWI Model Code) for the safe processing of bottled water, which in some cases is stricter than the FSANZ Standards. Whilst ABWI continues to retain the highest standards, ABWI is proposing that the current regulations in the code should reflect as a minimum the WHO drinking water guidelines where there is an enforcement mechanism in place to afford consumers levels of safety and quality based on the international standards. Please refer to **Appendix 2** for a comparison of ABWI and WHO limits.
- (b) The applicant does not anticipate any impact on nutrition as the proposed changes will not affect the composition or nutritional quality of the product. The purpose of the change aims to facilitate trade whilst protecting consumer health and safety, by providing limits for packaged water which are achievable and commensurate with WHO limits in water.
- (c) The applicant does not anticipate that there will be any consumer choice issues related to the proposed change to Standard 2.6.2 as the composition of the product will remain unchanged, and therefore there will be no changes to the typical analysis

and therefore will not affect consumer choice. The consumer will not be aware of the constituent limits in packaged water as these are not detailed anywhere on the packaging.

- (d) The costs and benefits to industry, consumers and government associated with the proposed compositional change are detailed below.

Advantage to industry

This Application is to provide a requirement that packaged waters in Australia and New Zealand legally comply with international levels and to reassure consumers that chemical constituents in packaged water are regulated on a mandatory level to the same levels as those set internationally. The inclusion of such limits will also enhance the ability of the industry to compete in export markets overseas.

ABWI represents approximately 80% of the bottled water business in Australia and approximately 90% of New Zealand's business. Combined members of both ABWI and the Australian Beverages Council approximate to 97% of the Australian industry.

All ABWI bottlers have been consulted on the proposed changes, and were asked to comment if they felt the alignment of WHO limits posed a hindrance to their chemical testing regime and would not be practically achievable. No feedback was received from members to indicate this was the case. ABWI is therefore confident that it has the full support of its members. The information sheet/survey sent out to all ABWI bottler's is detailed in **Appendix 3**.

Advantage to the consumer

The stated purpose behind this Application is to promote facilitation of trade in packaged water whilst maintaining the highest protection of public health and safety by providing the same limits for constituents in packaged water, listed in the WHO Drinking Water Quality Guidelines. Voluntary compliance cannot substitute for appropriate government regulations that will protect the health and safety of the public.

Advantage to Government

The application is seeking to harmonise limits for constituents in packaged water in the Code with international standards, therefore, this would advantage Government from an export perspective. The inclusion of such limits will also enhance the ability of the industry to compete in export markets.

Part B: General information to support the proposed compositional change

Proposed amendments to Standard 2.6.2 of the Code

ABWI proposes that sub-clause 2 (2) and the table to sub-clause 2 (2) (composition of packaged water) in Standard 2.6.2 (non alcoholic beverages and brewed soft drinks) of the Food Standards Code be removed and replaced with the following sentence;

Water presented in packaged form must not contain substances in greater corresponding proportion than those limits specified in ANNEX 4 of Chemical Summary Tables of WHO Guidelines for Drinking Water Quality (2nd Addendum to 3rd Edition, Volume 1) 2008. Table A4.3 Guideline values for chemicals that are of health significance in drinking-water.

Part C: Information related to nutritional impact

The proposed changes will not affect or alter the composition of the product, therefore, the proposed changes to the Code will not impact on the nutritional content of the product and therefore not affect the overall diet for the affected population groups. The changes relate to amending the maximum limits for chemical constituents in packaged water to ensure consumers are being adequately protected by providing the same limits in packaged water as those specified in the WHO guidelines.

Part D: Information related to potential impact on consumer understanding and behaviour

- (1) Information surrounding consumer understanding and behaviour is not necessary for the purposes of this application. The proposed changes will result in some additional testing requirements for the industry which will bear no impact on the consumer and will not have any impact on consumer understanding.
- (2) All the changes being proposed within the application which seek to align the Code with the WHO Drinking Water Quality Guidelines relate to additional testing requirements for the industry and do not intend to change/alter the chemical composition of the product (packaged water). As such there will be no adverse health or diet impacts on any population groups. The proposed changes will enhance the protection of public health and safety for Australian and New Zealand consumers. WHO has carried out rigorous risk assessments including chemical and toxicity testing to establish its current limits.

Part E: Information related to impact on the food industry

(1) Projected cost

There will be an additional cost to the industry with regard to the proposed change. This will result from additional testing requirements to the ABWI Model Code for chemicals (mainly organic) listed in the WHO drinking Water Guidelines.

National Measurement Institute (NMI) conducted a cost impact analysis for the purposes of ABWI bottlers to establish the additional cost they would incur to ensure compliance with the proposed WHO mandatory requirements, this worked out to be approximately \$800 in addition to what ABWI bottlers currently pay for chemical tests to ensure compliance to the ABWI Model Code. This is subject to the laboratory used.

Preliminary anecdotal evidence suggests there will be no or minimal increases to recommended retail prices.

ABWI anticipates a limited impact on the sale of existing products including the impact on small businesses.

(2) Impact on International Trade

The adoption of international standards for limits in packaged water would facilitate international trade. It would make it easier for Australian and New Zealand Bottled Water producers to export to Asia and the Middle East if they conformed “by regulation” rather than by “voluntary code” to a recognised high standard.

Currently, 95% of Bottled Water consumed in Australia and New Zealand is domestically produced, with the remaining 5% of bottled water imported from overseas. Australia exports approximately 5% of domestically produced bottled water to overseas markets.

International Standards

In addition to the WHO Quality Drinking Water Guidelines, which ABWI is seeking to align with, the Codex Alimentarius Commission, who promotes co-ordination of all food standards work undertaken by international governmental and non-governmental organisations, has also set international standards for natural mineral water and other packaged waters.

Codex Alimentarius

There are two Codex standards covering bottled water: the Standard for Natural Mineral Waters (*Codex Stan 108-1981*)²; and the General Standard for Bottled/Packaged Drinking Waters (other than natural mineral waters) (*Codex Stan 227-2001*)³.

The Codex Standard for Bottled/Packaged Drinking Waters (other than Natural Mineral Waters) refers wholly to the WHO guidelines for drinking water quality for health related limits for chemical substances.

With the exception of some chemicals (listed in **Appendix 4**) in Codex Standard for Natural Mineral Waters, the Codex Alimentarius International Food Standards require bottled drinking water to meet the WHO guidelines for chemical levels (it does not explicitly list acceptable levels), therefore the limits being proposed in the application will be also be in accordance with Codex as is the reason for choosing to align with WHO over Codex Standards.

International legislation

Currently the regulation of packaged waters differs between countries in Europe, Asia and the United States (US). Details on regulations in other countries with comparable regulatory systems to Australia and New Zealand are listed below;

Europe

EU legislation on Natural Mineral Water and Spring Water is covered by two EU Directives;

1) Natural Mineral Waters (EU Directive 2009/54/EC):

The Directive covering NMW, detailed in Directive 2009/54/EC⁴ states that NMW must be free from any contamination but no limits are set by the EU directive.

² Codex Standard for Natural Mineral Waters (CODEX STAN 108-1981)

³ General Standard for Bottled/Packaged Waters (Other than Natural Mineral Waters) (CODEX STAN 227-2001)

⁴ EU Directive 2009/54/EC of the European Parliament and of the Council on the exploitation and marketing of natural mineral waters (18th June 2009)

2) Spring water/drinking water (EU Directive 98/83/EC):

Spring water and other bottled drinking waters have to comply with the Drinking Water Directive 98/83/EC⁵. In the UK, the regulations implement this directive but also specify a limit of 0.03 ppb for aldrin, dieldrin, heptachlor and heptachlor epoxide.

Apart from a few chemicals (antimony, cadmium, cyanide, mercury), the levels stipulated in the Directive are reflective of the WHO limits.

It should be noted that the text is currently being revised so changes might be introduced in the near future.

US

In the US, the Food and Drug Administration (FDA) regulates bottled water through Title 21 of the Code of Federal Regulations (21 CFR)⁶. These regulations include the standard of quality regulation which has established allowable levels for 70 chemical contaminants in Bottled Water.

The limits set by FDA are in the main aligned with the US International Bottled Water Association (IBWA) quality standards, as set out in the IBWA Bottled Water Code of Practice (Voluntary Code). However, there are some additional chemicals set by IBWA which are more stringent than FDA and have been derived from US States of New Jersey and California. A comparison of voluntary and mandatory standards within the US regarding WHO and the FDA are detailed in **Appendix 5**.

⁵ EU Council Directive 98/83/EC on the quality of water intended for human consumption (3rd November 1998). Listed in Annex I table B.

⁶ Title 21 of the Code of Federal Regulations (21 CFR § 165.110(b))

References

- (1) World Health Organisation's (WHO) Guidelines for Drinking Water Quality 2008. 2nd Addendum to the 3rd Edition. Annex 4 (Chemical Summary Tables). Table A4.3 Guideline values for chemicals that are of health significance in drinking-water.
- (2) Codex Standard for Natural Mineral Waters (CODEX STAN 108-1981)
- (3) General Standard for Bottled/Packaged Waters (Other than Natural Mineral Waters) (CODEX STAN 227-2001)
- (4) EU Directive 2009/54/EC of the European Parliament and of the Council on the exploitation and marketing of natural mineral waters (18th June 2009)
- (5) EU Council Directive 98/83/EC on the quality of water intended for human consumption (3rd November 1998). Listed in Annex I table B.
- (6) Title 21 of the Code of Federal Regulations (21 CFR § 165.110(b))

Appendices

Appendix 1 – List of current ABWI members

Appendix 2 – A comparison of chemical limits for WHO and ABWI

Appendix 3 – ABWI Survey to bottlers to establish the support for the proposed application

Appendix 4 – Additional detail on Codex Standards for Natural Mineral Water and bottled/packageged waters and relationship with WHO.

Appendix 5 – Comparison of IBWA, US FDA, US State and WHO Drinking Water Quality Standards & Guidelines

Appendix 1 - List of current ABWI members

Alpine Beverages Pty Ltd
Aqua Cooler Pty Ltd
Aquaqueen Australian Spring Water
Aquasplash Limited
Aquatek Products Pty Ltd
Bertshell Pty Ltd
Bevco Pty Ltd
Big Springs Riverina
Big Wet Natural Spring Water
Black Mount Natural Spring Water Pty Ltd
Blue Mountains Natural Spring Water
Brickwood Holdings Pty Ltd
Coca-Cola Amatil (Aust) Pty Ltd
Cool Aqua Springs
Cooroy Mountain Spring Water Pty Ltd
Cormack Packaging Pty Ltd
Correct Food Systems
Crystal Clear Mineral Water Ltd
Eastcoast Beverages
Eaton Filtration Pty Ltd
Ed Ten Water
Eddie Hin Beverages Ltd
Elkay Pacific Rim (M) Sdn
Eternal NZ
Fosters Australia
Frucor Beverages Ltd
Full View Water Pty Ltd
High Mountain Pty Ltd
IDEXX Laboratories
JNI Pallet Systems

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Just Water Ltd
Larry Cook & Associates
Lithgow Valley Springs
Lloyd's Register Quality Assurance
Midbrook Pty Ltd
Millipore Australia Pty Ltd
Mountain H2O Pty Ltd
National Measurement Institute
NCS International (NCSI)
Neverfail Springwater Limited
Pall Australia
Pleass Beverages & Packaging
Quality Assurance International, LLC
Scholle Industries Pty Ltd
Schweppes Australia Pty Ltd
Splatt Engineering Group Pty Ltd
Springwater Beverages Pty Ltd
Tasmanian Natural Water Pty Ltd
The Cape Grim Water Company Pty Ltd
The Springwaterman
Visy Packaging Pty Ltd
Waterfarms Australia Pty Ltd
Waterworks Australia Pty Ltd
Wet Fix Pty Ltd (Wet Fix Natural Spring Water)
Willchris Pty Ltd
Woodbine Park (Operations) Pty Lt

Appendix 2

Table 1 - highlights the differences between testing requirements for WHO and ABWI, and how mandatory testing based on WHO will affect ABWI bottlers

Chemical	WHO – Guidelines for Drinking Water Quality (3rd edition) Mg/L	Requirement of the ABWI Model Code to test?	WHO guideline stricter than ABWI
Acrylamide	0.0005	No	
Alachlor	0.02	0.002	
Aldicarb	0.01	No	
Aldrin and Dieldrin	0.00003	No	
Antimony	0.02	0.006	
Arsenic	0.01	0.05	Yes
Atrazine	0.002	0.003	Yes
Barium	0.7	1.0	Yes
Benzene	0.01	0.005	
Benzo(a)pyrene	0.0007	0.0002	
Boron	0.5	No	
Bromodichloromethane	0.06	No	
Bromoform	0.1	No	
Cadmium	0.003	0.005	Yes
Carbofuran	0.007	0.04	Yes
Carbon tetrachloride	0.004	0.005	Yes
Chlorate	0.7	No	
Chlordane	0.0002	0.002	Yes
Chlorine	5 (C)	Free <0.1	
Chlorite	0.7 (D)	No	
Chloroform	0.3	No	

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Chlorotoluron	0.03	No	
Chlorpyrifos	0.03	No	
Chromium	0.05	0.05	
Copper	2	1.0	
Cyanazine	0.0006	No	
Cyanogen Chloride	0.07	No	
2,4-D Dichlorophenoxyacetic acid	0.03	0.07	Yes
2,4-DB	0.09	No	
DDT and metabolites	0.001	No	
Di(2-ethylhexyl)phthalate	0.008	0.006	
Dibromoacetonitrile	0.07	No	
Dibromochloromethane	0.1	No	
Dibromo-3-chloropropane, 1,2- (as dibromochloropropane)	0.001b	0.0002	
Dibromoethane, 1,2-	0.0004b (P)	No	
Dichloroacetate	0.05b (T, D)	No	
Dichloroacetonitrile	0.02 (P)	No	
Dichlorobenzene, 1,2- (Known as o-dichlorobenzene)	1 (C)	0.6	
Dichlorobenzene, 1,4- (Known as p-dichlorobenzene)	0.3 (C)	0.075	
Dichloroethane, 1,2-	0.03b	0.005	
Dichloroethene, 1,2- (known as 1,2 dichloroethylene)	0.05	0.075	Yes
Dichloromethane	0.02	0.005	

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1,2-Dichloropropane (1,2-DCP)	0.04 (P)	0.005	
1,3-Dichloropropene	0.02b	Not in ABWI but reported anyway by NMI in VOC list to 0.001.	
Dichloroprop (Also known as 2,4-DP)	0.1	No	
Dimethoate	0.006	No	
Dioxane, 1,4-	0.05b	No	
Edetic acid (EDTA)	0.6 Applies to the free acid	No	
Endrin	0.0006	0.0002	
Epichlorohydrin	0.0004 (P)	No	
Ethylbenzene	0.3 (C)	0.7	
Fenoprop (Known as Silvex or 2,4,5-TP)	0.009	Yes 0.01, reported anyway by NMI to 0.001	Yes
Fluoride	1.5	1.0	
Hexachlorobutadiene	0.0006	Not in ABWI but reported anyway by NMI in VOC list to 0.001.	
Isoproturon	0.009	No	
Lead	0.01	0.005	
Lindane	0.002	0.0002	
Manganese	0.4	0.05	
MCPA	0.002	No	
Mecoprop also known as MCPP	0.01	No	
Mercury	0.006	0.001	
Methoxychlor	0.02	0.04	Yes

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Metolachlor	0.01	No	
Microcystin-LR	0.001 (P) For total microcystin-LR (free plus cellbound)	No	
Molinate	0.006	No	
Molybdenum	0.07	No limit set in ABWI but reported anyway by NMI in metals list to 0.001.	
Monochloramine	3	No	
Monochloroacetate	0.02	No	
Nickel	0.07	0.1	Yes
Nitrate (as NO ₃ -)	50	10	
Nitrilotriacetic acid (NTA)	0.2	No	
N-Nitrosodimethylamine (NDMA)	0.1	No	
Nitrite (as NO ₂ -)	3	1.0	
Pendimethalin	0.02	No	
Pentachlorophenol	0.009b (P)	Yes 0.001	
Permethrin	0.3 (only when used as a larvicide for public health purposes)	No	
Pyriproxyfen	0.3	No	
Selenium	0.01	0.01	
Simazine	0.002	0.004	Yes
Sodium dichloroisocyanurate	50 (40 as cyanuric acid)	No	
Styrene	0.02 (C)	0.1	Yes
2,4,5-T	0.009	No	
Terbuthylazine	0.007	No	

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Tetrachloroethene known as Tetrachloroethylene	0.04	Yes 0.005	
Toluene	0.7 (C)	1.0	Yes
Trichloroacetate	0.2	No	
Trichloroethene known as trichloroethylene	0.02 (P)	Yes 0.001	
Trichlorophenol, 2,4,6-(as speciated phenolics)	2,4,6- 0.2b (C)	Yes 0.001	
Trifluralin	0.02	No	
Trihalomethanes	The sum of the ratio of the concentration of each to its respective guideline value should not exceed 1	0.01	
Uranium	0.015 Provisional guideline	No	
Vinyl chloride	0.0003	0.002	Yes
Xylene	0.5	10	Yes

Additional tests for ABWI bottlers (based on WHO limits)

Summary

- WHO – currently lists limits for 93 chemicals (organic and inorganic)
- ABWI bottlers will be required to conduct an extra 42 tests (mainly for organic compounds - highlighted in yellow)
- ABWI bottlers will be required to meet more stringent limits (as per WHO) for the following chemicals;
 1. Arsenic
 2. Barium
 3. Cadmium
 4. 2,4 D
 5. Nickel
 6. Toluene
 7. Xylene
 8. Atrazine
 9. Carbofuran
 10. Carbon tetrachloride
 11. Chlordane

12. 1,2 Dichloroethylene (ethene)
13. Fenoprop (2,4,5-TP)
14. Methoxychlor
15. Simazine
16. Styrene
17. Vinyl chloride

Appendix 3

Codex standards require bottled drinking water to meet WHO guidelines for chemical levels, with the exception of some chemicals in Natural Mineral Waters

The exceptions to this are:

	<i>Codex Stan 108</i> level (mg/L)	WHO level (mg/L)
Antimony	0.005	0.02
Barium	2	0.7
Boron	5	0.5
Copper	1	2
Fluoride	Must be labelled if over 1.5	1.5
Mercury	0.001	0.006
Nickel	0.02	0.07
Nitrite	0.1	0.2 (long term exposure)

Note that other chemicals covered in Section 3.2 of the Standard for Natural Mineral Waters, with levels consistent with WHO guidelines, are: Arsenic 0.01 mg/L; Cadmium 0.003 mg/L; Chromium 0.05 mg/L; Cyanide 0.07 mg/L; Lead 0.01 mg/L; Manganese 0.4 mg/L; Nitrate 50 mg/L; Selenium 0.01 mg/L.

In addition, the Codex General Standard for Contaminants and Toxins in Foods provides limits in Natural Mineral Waters for: Arsenic 0.01 mg/L; Cadmium 0.003 mg/L; Lead 0.01 mg/L; Mercury 0.001 mg/L. These are all consistent with the Standard for Natural Mineral Waters and, with the exception of the level for mercury, they are all consistent with the WHO guidelines.

Appendix 4

ABWI Survey to all member bottlers

Re: ABWI Proposal Food Standards Australia New Zealand to align limits for chemical constituents in packaged water in the Food Standards Code with International Standards, based on the World Health Organisation (WHO).

DISCLAIMER: PLEASE NOTE, THAT AS AN ABWI MEMBER BOTTLER IT IS IMPORTANT YOU READ AND UNDERSTAND THE FOLLOWING INFORMATION AS THE PROPOSAL BEING PUT FORWARD BY ABWI WILL HAVE LEGAL IMPLICATIONS WHICH YOU WILL NEED TO ADHERE AND COMMIT TO IF APPROVED BY FSANZ.

Summary

ABWI is currently drafting an application to FSANZ to seek alignment of chemical constituent limits in packaged water in Australia and New Zealand with the World Health organisation (WHO) Drinking Water Quality Guidelines 2008.

Aim of the application

The proposed application aims to align certain standards (maximum limits for organic and inorganic chemicals) in Australia and New Zealand with international standards which will ultimately facilitate international trade, and therefore streamline export markets whilst in parallel protect public health. Adopting the WHO limits would sure maximum limits for chemicals constituents are consistent across the globe providing the highest level of health and safety protection to consumers.

Intent of the application

ABWI Technical Standards Committee is seeking to amend the Food Standards Code to provide mandatory requirements for chemical limits in packaged water to reflect international standards for the following reasons;

- 1) Ensure public health and safety by complying with legal standards
- 2) Aligning with international limits will facilitate international trade and enhance export markets
- 3) Reduce the risk of non compliances, particularly from non ABWI members
- 4) From a media and communications perspective, promote the Industry adherence to legal standards as opposed to voluntary requirements through the Model Code.
- 5) Ensure all bottlers, not just ABWI members are complying with the same legal limits which will be reflective of international drinking water limits.

Current Standards in Australia and New Zealand

There are currently no maximum limits set for organic compounds in the FSANZ Code and ABWI would like to see the introduction of these limits as per WHO. FSANZ do have limits for certain inorganic compounds, but there are some differences and in some cases are not as strict as limits stipulated in the ABWI Model Code and the WHO Guidelines.

How will the application affect ABWI Bottlers

There will be additional chemicals (with maximum limits) stipulated in the WHO Drinking Water Guidelines, which are currently not required for testing in the ABWI Model Code. If the proposed application becomes a mandatory standard, ABWI bottlers will be required to undertake additional tests for inorganic chemicals in packaged water. In addition, there are certain chemicals listed in the WHO Quality Drinking Water Guidelines which are stricter than those limits stipulated in the ABWI Model Code and therefore bottlers will be required to comply with the stricter WHO limits. This would also require amendments to the ABWI Model Code.

ABWI bottlers will be required to meet more stringent limits (as per WHO) for the following 17 chemicals;

Chemical	Current ABWI limit (Mg/L)	New proposed limit (as per WHO) (Mg/L)
Arsenic	0.05	0.01
Atrazine	0.003	0.002
Barium	1.0	0.7
Cadmium	0.005	0.003
Carbofuran	0.04	0.007
Carbon tetrachloride	0.005	0.004
Chlordane	0.002	0.0002
2,4 D Dichlorophenoxyacetic acid	0.07	0.03
1,2 Dichloroethylene (ethene)	0.075	0.05

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Fenoprop (2,4,5-TP)	0.01	0.009
Methoxychlor	0.04	0.02
Nickel	0.1	0.07
Simazine	0.004	0.002
Styrene	0.1	0.02
Toluene	1.0	0.7
Vinyl chloride	0.002	0.0003
Xylene	10	0.5

ABWI has received a cost impact analysis from NMI regarding the additional tests, which will be a mandatory requirement if the application gains approval from FSANZ. The cost to ABWI bottlers for the additional tests will be approximately \$800 subject to the laboratory used.

ABWI would like to hear the views of the ABWI bottlers. If you are concerned about the additional cost or complying with the proposed stricter standards in the Food Standards Code, please contact Lucy Pearson at ABWI (pearson@bottledwater.org.au)

Appendix 5

COMPARISON OF IBWA, USFDA, U.S. STATE, AND WHO DRINKING WATER QUALITY STANDARDS AND GUIDELINES

MONITORING PARAMETER GROUP		SOQs, MCLs, SMCLs, and Guidelines				
Individual Group Analytes						
Inorganic Chemicals (IOCs)		IBWA SOQ	FDA SOQ	EPA MCL	REFERENCE ⁷	WHO Guideline
	Antimony (1)	0.006	0.006	0.006		0.02
	Arsenic	0.01	0.01	0.01		0.01
	Barium	1	2	2	CA (1994)	0.7
	Beryllium	0.004	0.004	0.004		
	Boron	NA	NA	NA		0.3
	Bromate	0.010	0.010	0.010		0.010
	Cadmium	0.005	0.005	0.005		0.003
	Chlorine	0.1	4.0	4.0	Not known	5.0
	Chloramine	4.0	4.0	4.0		3.0
	Chlorine dioxide	0.8	0.8	0.8		
	Chlorite	1.0	1.0	1.0		0.2
	Chromium	0.05	0.1	0.1	CA (1977)	0.05
	Cyanide	0.1	0.1	0.2		0.07
	Fluoride ⁸	See note	See note	4		1.5
	Lead	0.005	0.005	0.015 AL		0.01
	Mercury	0.001	0.002	0.002	Not known	0.001
	Molybdenum	NA	NA	NA		0.07
	Nickel	0.1	0.1	"Remanded"	FDA & CA	0.07
	Nitrate-N	10	10	10		50
	Nitrite-N	1	1	1		3
	Total Nitrate + Nitrite	10	10	10		
	Selenium	0.01	0.05	0.05	CA (1977)	0.01
	Thallium	0.002	0.002	0.002		
Secondary Inorganic Parameters		IBWA SOQ	FDA SOQ	EPA SMCL	REFERENCE	WHO Guideline
	Aluminum	0.2	0.2	0.2		
	Chloride	250	250	250		
	Copper	1	1	1.3 AL		2
	Iron	0.3	0.3	0.3		
	Manganese	0.05	0.05	0.05		0.05
	Silver	0.025	0.1	0.1	Former EPA MCL	
	Sulfate	250	250	250		
	Total Dissolved Solids (TDS)	500	500	500		
	Zinc (5)	5	5	5		
Volatile Organic Chemicals (VOCs)		IBWA SOQ	FDA SOQ	EPA MCL	REFERENCE	WHO Guideline
	1,1,1-Trichloroethane	0.03	0.2	0.2	NJ	2
	1,1,2-Trichloroethane	0.003	0.005	0.005	NJ	
	1,1-Dichloroethylene	0.002	0.007	0.007	NJ	0.03
	1,2,4-Trichlorobenzene	0.009	0.07	0.07	NJ	0.02
	1,2-Dichloroethane	0.002	0.005	0.005	NJ	0.03
	1,2-Dichloropropane	0.005	0.005	0.005		0.02
	1,3-Dichloropropene	NA	NA	NA		0.02
	Benzene	0.001	0.005	0.005	NJ	0.01
	Carbon tetrachloride	0.005	0.005	0.005	NJ=0.002	0.002
	cis-1,2-Dichloroethylene	0.07	0.07	0.07		

⁷ The IBWA SOQ for this contaminant was adopted from standards published by the state or agency listed.

⁸ See 21 CFR 165.110(B)(4)(ii) for fluoride SOQs based on ambient temperature conditions.

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trans-1,2-Dichloroethylene	0.1	0.1	0.1		0.05
Ethylbenzene	0.7	0.7	0.7		0.3
Methylene chloride (Dichloromethane)	0.003	0.005	0.005	NJ	0.02
Monochlorobenzene	0.05	0.1	0.1	NJ	0.3
o-Dichlorobenzene	0.6	0.6	0.6		1
p-Dichlorobenzene	0.075	0.075	0.075		0.3
Haloacetic Acids (HAA5)	0.06	0.06	0.06		
Styrene	0.1	0.1	0.1		0.02

All SOQs, MCLs, SMCLs, and guidelines in mg/L (ppm) except as noted.

BOLD TYPE indicates either no IBWA SOQ for contaminant or WHO guideline more stringent than IBWA SOQ.

MONITORING PARAMETER GROUP		SOQs, MCLs, SMCLs, and Guidelines				
Individual Group Analytes						
Volatile Organic Chemicals (VOCs) (Continued)		IBWA SOQ	FDA SOQ	EPA MCL	REFERENCE	WHO Guideline
	Tetrachloroethylene	0.001	0.005	0.005	NJ	0.04
	Toluene	1	1	1		0.7
	Trichloroethylene	0.001	0.005	0.005	NJ	0.07
	Vinyl chloride	0.002	0.002	0.002		0.005
	Xylenes (total)	1	10	10	NJ	0.5
	Bromodichloromethane	(6)	(6)	(6)		0.06
	Chlorodibromomethane	(6)	(6)	(6)		0.1
	Chloroform	(6)	(6)	(6)		0.2
	Bromoform	(6)	(6)	(6)		0.1
	Total Trihalomethanes	0.01	0.08	0.08	CA	
Semivolatile Organic Chemicals (SVOCs)		IBWA SOQ	FDA SOQ	EPA MCL	REFERENCE	WHO Guideline
	Benzo(a)pyrene	0.0002	0.0002	0.0002		0.0007
	Di(2-ethylhexyl)adipate	0.4	0.4	0.4		0.08
	Di(2-ethylhexyl)phthalate	0.006	NA	0.006		0.008
	Hexachlorobenzene	0.001	0.001	0.001		0.001
	Hexachlorocyclopentadiene	0.05	0.05	0.05		
	Total Recoverable Phenolics	0.001	0.001	NA		
Synthetic Organic Chemicals (SOCs)		IBWA SOQ	FDA SOQ	EPA MCL	REFERENCE	WHO Guideline
	2,4,5-TP (Silvex)	0.01	0.05	0.05	CA (1977)	
	2,4-D (Dichlorophenoxy acetic acid)	0.07	0.07	0.07		
	Alachlor	0.002	0.002	0.002		0.02
	Aldicarb	0.003	NA	NA	Not known	0.01
	Aldicarb sulfone	0.003	NA	NA	Not known	
	Aldicarb sulfoxide	0.004	NA	NA	Not known	
	Aldrin/Dieldrin	NA	NA	NA		0.00003
	Atrazine	0.003	0.003	0.003		0.002
	Bentazone	NA	NA	NA		0.03
	Carbofuran	0.04	0.04	0.04		0.005
	Chlordane	0.002	0.002	0.002		0.0002
	Chlorotoluron	NA	NA	NA		0.03
	Dalapon	0.2	0.2	0.2		
	DDT	NA	NA	NA		0.002
	Dibromochloropropane (DBCP)	0.0002	0.0002	0.0002		0.001
	2,4-D	NA	NA	NA		0.03
	2, 4-DB	NA	NA	NA		0.09
	Dichlorprop	NA	NA	NA		0.1
	Dinoseb	0.007	0.007	0.007		
	Dioxin (2,3,7,8-Tetrachlorodibenzo-p-dioxin)	3×10^{-8}	3×10^{-8}	3×10^{-8}		
	Diquat	0.02	0.02	0.02		
	Endothall	0.1	0.1	0.1		
	Endrin	0.002	0.002	0.002		
	Ethylene dibromide	0.00005	0.00005	0.00005		
	Fenoprop	NA	NA	NA		0.009
	Glyphosate	0.7	0.7	0.7		
	Heptachlor	0.0004	0.0004	0.0004		
	Heptachlor epoxide	0.0002	0.0002	0.0002		0.03

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Isoproturon	NA	NA	NA	0.009
Lindane	0.0002	0.0002	0.0002	0.002
Methoxychlor	0.04	0.04	0.04	0.02
MCPA	NA	NA	NA	0.002
Mecoprop	NA	NA	NA	0.01
Metolachlor	NA	NA	NA	0.01
Molinate	NA	NA	NA	0.006
Oxamyl (vydate)	0.2	0.2	0.2	
Pendimethalin	NA	NA	NA	0.02
Pentachlorophenol	0.001	0.001	0.001	0.009
Permethrin	NA	NA	NA	0.02
Propanil	NA	NA	NA	0.02
Pyridate	NA	NA	NA	0.1
Picloram	0.5	0.5	0.5	
Polychlorinated biphenyls (PCBs)	0.0005	0.0005	0.0005	
Simazine	0.004	0.004	0.004	0.002
2,4,5-T	NA	NA	NA	0.009
Trifluralin	NA	NA	NA	0.02
Toxaphene	0.003	0.003	0.003	

COMPARISON OF IBWA, USFDA, U.S. STATE, AND WHO DRINKING WATER QUALITY STANDARDS AND GUIDELINES

MONITORING PARAMETER GROUP		SOQs, MCLs, SMCLs, and Guidelines				
	Individual Group Analytes					
Additional Regulated Contaminants		IBWA SOQ	FDA SOQ	EPA MCL	REFERENCE	WHO Guideline
	Methyl tertiary butyl ether (MTBE)	0.07	NA	NA	NJ	
	Naphthalene	0.3	NA	NA	NJ	
	1,1,2,2-Tetrachloroethane	0.001	NA	NA	NJ	
	Acrylamide	NA	NA	NA		0.0005
	Cyanogen chloride	NA	NA	NA		0.07
	Epichlorohydrin	NA	NA	NA		0.0004
	Hexachlorobutadiene	NA	NA	NA		0.0006
	Edetic acid (EDTA)	NA	NA	NA		0.2
	Nitrilotriacetic acid	NA	NA	NA		0.2
	2,4,6-Trichlorophenol (DBP)	NA	NA	NA		0.2
	Dichloroacetic acid	NA	NA	NA		0.05
	Trichloroacetic acid	NA	NA	NA		0.1
	Formaldehyde (DBP)	NA	NA	NA		0.9
	Chloral hydrate (Trichloroacetaldehyde)	NA	NA	NA		0.01
	Dichloroacetonitrile	NA	NA	NA		0.09
	Dibromoacetonitrile	NA	NA	NA		0.1
	Trichloroacetonitrile	NA	NA	NA		0.07
	Tributyltin oxide	NA	NA	NA		0.002
Microbiological Contaminants		IBWA SOQ	FDA SOQ	EPA MCL	REFERENCE	WHO Guideline
	Total coliform / <i>E. coli</i> NOTE: This section under revision.	No <i>Escherichia coli</i> detectable in a 100 ml portion/sample. No validated total coliform detectable in a 100 ml portion/sample as substantiated by resampling.	MPN: <9.2 organisms per 100 ml. MF: <4 CFU per 100 ml.	No more than 5% of monthly samples valid for total coliform.		Similar to IBWA
Radiological Contaminants		IBWA SOQ	FDA SOQ	EPA MCL	REFERENCE	WHO Guideline
	Gross Alpha	15 pCi/L	15 pCi/L	15 pCi/L		0.1 Bq/l
	Gross Beta	50 pCi/L	50 pCi/L	50 pCi/L		1.0 Bq/l
	Radium 226/228 (combined)	5 pCi/L	5 pCi/L	5 pCi/L		
	Strontium 90	8 pCi/L	8 pCi/L	8 pCi/L		

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	Tritium and other man-made nuclides	NA	NA	NA		
	Uranium	0.030	0.030	0.030		
Water Properties		IBWA SOQ	FDA SOQ	EPA MCL	REFERENCE	WHO Guideline
	Color	5 Units	15 Units	5 Units	EPA	
	Turbidity	0.5 NTU	5.0 NTU	0.5 NTU	EPA	
	pH (8)	5-7/6.5-8.5	NA	6.5-8.5		
	Odor	3 T.O.N.	3 T.O.N.	3 T.O.N.		

B. Hirst, IBWA (revised August, 2009)

