Model Code

Revised June 2013

Australasian Bottled Water Institute

A Division of the

Australian Beverages Council

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Section I - Objectives

The ABWI Model Code has been developed as a Standard of Excellence for the production of bottled waters for the protection of consumers, bottlers and other participants of the industry.

The Model Code has been adopted by the bottler members of ABWI. Bottler members must participate in the Plant Inspection Program to maintain their membership of the ABWI and they must be audited annually by a third party, independent auditor operating in compliance with Guidelines for quality and/or environmental systems auditing, ISO 19011.

The Model Code is based on quality systems combined with Good Manufacturing Practices (GMP). The Model Code requires that members have a third party audited HACCP (hazard analysis, critical control point) system in place and it is a requirement that this document is used in combination with the Recommended International Code of Practice – General Principles of Food Hygiene, (CAC/RCP 1-1969, Rev. 3(1997)), of Codex text as amended. This code should also be used in combination with the Principles for the Establishment of and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

The water that is sourced and used for bottled waters may come from a variety of sources. Typically many waters are sourced from an underground aquifer to produce a still or sparkling, spring or mineral water. Bottlers may also bottle treated water obtained from a municipal water authority. However there is a range of other types of waters available. Provided such waters are selected, collected, transported, filled and sealed in a safe and sanitary manner, and are treated to ensure that they remain in the same quality as when first bottled; for the length of their shelf-life; consumers can enjoy all waters with confidence.

Bottled waters may be produced and labeled as follows:-

a) bottled water with 'added fluoride'

b) drinking water,

c) glacier water,

d) mineral water,

e) mineralised water,

f) packaged water,

g) purified water,

h) rain water,

i) spring water,

j) table water,

k) or other appropriately designated water, consistent with the Australia New Zealand Food Standards Code and/or ACCC or NZ TPA or any other applicable national regulations.

The ABWI Secretariat will send all members a reminder 3 months prior to their anniversary or nominated date. A follow -up reminder will be sent if ABWI has not been advised of the date booked for the audit within 30 days of the original reminder being sent.

Bottlers are required to have had their audit conducted and passed prior to their anniversary date each year and to advise the ABWI office of their passing score, each year.

The ABWI Secretariat will provide Certified Bottlers with a copy of the contract that is to be signed by the bottler, to enable them to use the ABWI Certified Bottler logo.

This Model Code for Bottled Water has been prepared by the Australasian Bottled Water Institute, its membership, Board of Directors and Committees.

For questions about the Model Code contact: Australasian Bottled Water Institute, Level 1, 6 - 8 Crewe Place, Rosebery NSW 2018, or info@bottledwater.org.au

Section II – Scope, Use and Definitions

2.1 Scope

The intent of the ABWI Model Code and the accompanying Plant Inspection Program is to assist bottler and source owner members in their endeavors to produce a quality product, providing information and direction with technical procedures and quality systems and standards. As a result, the requirements of the Model Code exceed those of mandatory food law as set out in the Australia New Zealand Food Standards Code.

Regardless of where the water may be sourced, fully documented procedures with all check results recorded and in conjunction with quality systems are required to be maintained.

The ABWI Model Code requires members to undertake a rigorous and onerous testing regime. This includes scheduled daily, weekly and annual testing. ABWI considers this test regime to be essential.

The Australasian Bottled Water Institute's Plant Inspection Program has been developed to assist members to achieve a standard whereby they will be considered '*bottlers of excellence'*.

This program is supported by the use of a registered logo that is only available for use by Certified Bottlers.

It is a **REQUIREMENT** that where applicable, ABWI members do NOT operate a bottled water plant or bottle water for the purpose of sale or distribution without passing the ABWI Plant Inspection Program within 12 months of joining ABWI.

If you are a bottler supplying to a supermarket, you may be required to conform to the following retail audit standards (detailed below) where additional requirements to that of the ABWI requirements will need to be fulfilled;

1) Woolworths Quality Assurance (WQA)

2) Safe Quality Food (SQF)

3) British Retail Consortium (BRC)

4) Coles Quality Assurance

2.2 Use

a) Bottler members are required to comply with the Plant Inspection Program based on the requirements of the ABWI Model Code.

b) Bottlers must submit to document review and annual audit as required by ABWI.

c) Surveillance and certification audits may only be conducted by ABWI approved registered auditors.

d) The scope of the audit is the ABWI Model Code.

e) Bottlers are expected to have completed and passed the audit prior to the anniversary date of their initial audit.

f) The Model Code is designed around a series of compliance points that a bottler "**MUST**" comply with, supported by processes and procedures that are "**REQUIRED**" or "**recommended**".

g) To attain a pass, bottlers need to comply with all "**MUST**" and "**REQUIRED**" points for the supporting requirements that a bottler is "**REQUIRED**" or "**recommended**" to comply with.

h) Where a bottler does NOT comply with all " **MUST**" or "**REQUIRED**", they have 30 days to complete corrective actions and have these approved by the auditor or as arranged. Where the non-compliance relates to the annual water testing for organic and volatiles then the bottler will be allowed a maximum of 60 days to have the test results returned.

i) Bottlers may apply to ABWI for a concession of a given period of time, where it is not possible for the non-compliance to be closed within the time period stated above. This concession will be given at the discretion of the Executive Director. In this case a document review may be requested.

j) Where a bottler does not achieve a score of 70% or higher, but has complied with all "**MUST**" requirements, they have 60 days to attend to the necessary points, identified by the auditor, and to have their plant or documentation re-evaluated to achieve full conformance with the code.

k) ABWI accredited auditors are required to provide the bottler with a copy of the completed audit checklist, along with any corrective action reports (CARs) that are issued on the day of audit, or as agreed with the auditee. The 30 / 60 days permitted to fulfill these noncompliance will commence from that day.

l) Observers or technical advisors may be present on the day of certification audits. Others that may be present include translators which would be recorded as such on any audit report.

m) If any conflict is noted by auditor or auditee an exemption may be sought from ABWI for circumstances such as where there may be problems of communication for the bottler, e.g.: English is their second language, where consultants could act as a translator for example.

n) Bottlers will obtain and maintain "Certified Bottlers" status passing their annual audit.

o) The use of the ABWI logo is only permitted by Certified Bottlers. For the requirements dealing with the use of the logo please see the ABWI contract for the use of the logo.

p) Source owners may seek separate Source Certification. In this event they **MUST** meet the compliance points for an approved source for chemical and microbiological testing (See Standard of Analytical Compliance). Certified sources **MUST** also carry out the annual testing regime.

q) The ABWI Executive Director has the discretion to extend the period of certification upon request by the bottler

2.3 Definitions & Acronyms

ABWI Members are **REQUIRED** to comply with the definitions described below:-

Adequate - is that which accomplishes the intended purpose in keeping with good health practices.

Approved method - a methodology approved by the National Accreditation Testing Association (NATA) or certified (accredited) by a third-party organisation acceptable to ABWI.

Approved Source - a source for which approval has been obtained and maintained in accordance with chemical and microbiological testing requirements (See Standard of Analytical Compliance). The bottler **MUST** maintain in the plant a current license or certificate of approval of the source where issued (by state or department).

Bottled Water - water that is intended for human consumption and that is sealed in bottles or other containers with no added ingredients except that it may optionally contain safe and suitable antimicrobial agents. Firms may manufacture non-standardised bottled water products with ingredients such as minerals for flavour. The common or usual name of the resultant product will reflect these additions.

Bulk Water - water intended for potable use which is transported via tanker truck or equivalent means from one area to another for the purpose of treatment, packaging and human consumption.

Closure – Container lid

Demineralised water - bottled water which is produced by distillation, deionisation, reverse osmosis, or other suitable process.

Drinking water - water that is intended for human consumption and that is sealed in bottles or other containers with no added ingredients except that it may optionally contain safe and suitable antimicrobial agents. Firms may manufacture non-standardised drinking water products with ingredients such as minerals for flavour. The common or usual name of the resultant product will reflect these additions.

Food-contact surfaces - are those surfaces that contact human food and those surfaces from which drainage onto the food or onto surfaces that contact the food ordinarily occurs during

the normal course of operations. "Food-contact surfaces" include utensils and food-contact surface of equipment.

Fluoridated bottled water – Any still, bottled water, to which fluoride has been added, in accordance with the provisions set out in the FSANZ Food Standards Code.

Ground water - water from a subsurface saturated zone that is under a pressure equal to or greater than atmospheric pressure. Ground water **MUST** not be under the direct influence of surface water.

Lot - a collection of primary containers or unit packages of the same size, type and style produced under conditions as nearly uniform as possible and designated by a common container code, batch code or marking.

Microorganisms - yeast, molds, bacteria and viruses and includes, but is not limited to, species having public health significance. The term "undesirable microorganisms" includes those microorganisms that are of public health significance, that subject food to decomposition, that indicate that food is contaminated with filth, or that otherwise may cause food to be adulterated. Occasionally in these regulations, the adjective "microbial" is used instead of an adjectival phrase containing the word microorganism.

Mineral Water - ground water obtained from a subterranean water-bearing strata that, in its natural state, contains soluble matter. It is a **REQUIREMENT** that mineral water have a level of total dissolved solids of greater than 250 ppm. No minerals may be added to such water.

Multi-service containers - containers intended for use more than one time

MUST - is used to state mandatory requirements.

Natural Water - bottled spring, mineral or well water which is derived from an underground formation or water from surface water that only requires minimal processing, is not derived from a municipal system or public water supply, and is unmodified except for limited treatment (e.g., filtration, ozonation or other proven disinfection processes).

Nontoxic materials - materials for product water contact surfaces utilised in the transporting, processing storing and packaging of bottled water, which are free of substances which may render the water injurious to health or which may adversely affect the flavour, colour, odour, or bacteriological quality of the water.

Operations water - water that is delivered under pressure to a plant for container washing, hand washing, plant and equipment, cleanup and for other sanitary purposes.

Pest - refers to any objectionable animals or insects including, but not limited to, birds, rodents, flies and larvae.

Plant Operator - any person who owns or operates a bottled water plant. A certified plant operator is one who has met the requirements of the ABWI Certified Plant Operator Course, and has passed refresher examination every three years hence.

Potable Water – water that meets the Australian Drinking Water Guidelines, such as municipal water.

Primary container - the immediate container in which the product water is packaged.

Product water - operations water that has been fully processed ready for final product formulation.

Purified Water - bottled water produced by distillation, deionisation, reverse osmosis.

Sanitize - to adequately treat food-contact surfaces by a process that is effective in destroying vegetative cells of microorganisms of public health significance, and in substantially reducing numbers of other undesirable microorganisms, but without adversely affecting the product or its safety for the consumer.

Recommended - is used to state recommended or advisory procedures to identify conditions that should be met. A minimum of 90% compliance against the audit checklist is required.

REQUIRED / REQUIREMENT/MUST - is used to state a process or procedure which requires full compliance of ABWI bottlers.

Shipping case or shipper - means a container in which one or more primary containers of the product are held

Single-service container - means a container intended for one time usage only.

Source - when used in reference to a bottled water plant's product water, means the original source of the water, prior to any transportation, processing or treatment.

Spring water - means ground water obtained from subterranean a water-bearing stratum that, in its natural state, contains soluble matter. No minerals may be added to such water.

Unit package - means a standard commercial package of bottled water, which may consist of one or more containers.

Water dealer - means any person who imports bottled water or causes bulk water to be transported for bottling for human consumption or other consumer uses.

Well water - means water from a hole bored, drilled, or otherwise constructed in the ground which taps the water of an aquifer.

ABWI Australasian Bottled Water Institute

ADWG Australian Drinking Water Guidelines

CCP Critical Control Point

CP Control Point

FSANZ Food Standards Australia New Zealand

GMP Good Manufacturing Processes

HACCP Hazard Analysis and Critical Control Point

NHMRC National Health and Medical Research Council

WHO World Health Organisation

Section III – Primary Production

3.1 Environmental Hygiene of Source

1. Approval of the source water product derived from a source other than a public water supply **MUST** be based upon a field inspection of the source and a review of information prepared by a professionally qualified hydrogeologist

2. Report by the professionally qualified hydrogeologist **MUST** demonstrate the integrity of the source and safety of the catchment operations, and that **MUST** include:

a) An evaluation of the chemical, physical, microbiological, and radiological characteristics of the source.

b) A report on the regional geology surrounding the site and the specific site geology. A description of the vertical and horizontal extent of the source aquifer using existing data. The information will be used to define the recharge area of the aquifer, or in the case of regional aquifers, the zone of influence of the subject source.

c) A report detailing the development of the source; the method of construction including spring design, well installation, surface catchment, and intake structures; and transmission facilities as appropriate.

d) A watershed survey of the recharge area or zone of influence of subject source that identifies and evaluates actual and potential sources of contamination, including any reported discharge that may affect the source.

e) Based on the findings in item (d), a plan for special monitoring of any significant contaminant source and for taking restrictive preventive or corrective measures as appropriate to protect the source water.

3. It is a **REQUIREMENT** that a landuse assessment be conducted every 4 years by an appropriately trained person, to assess changes in local landuse that may impact on an underground source, where the water is sourced from an underground source.

4. It is a **REQUIREMENT** that the plant operator be responsible for sampling and analysis of all approved sources for the contaminants specified in the Standard of Analytical Compliance.

5. Such monitoring is **REQUIRED** to be at the frequencies specified of the Standard of Analytical Compliance.

6. In lieu of source monitoring required by this Section, a plant operator using a public water system as its water supply is **REQUIRED** to obtain and display a certificate from said system demonstrating that the public water system conducts the monitoring required.

7. Where a bottled water plant operator, water dealer, or regulatory agency knows or has reason to believe that a contaminant not otherwise monitored is present in the source water because of a spill, release of a hazardous substance, or otherwise, and its presence would create a potential health hazard to consumers, the plant operator or water dealer upon receipt of such information **MUST** monitor the source water for said contaminant.

8. Detection of contaminant(s) in source monitoring required pursuant to Section 8 **MUST** be followed immediately by a program of periodic monitoring to confirm the presence in the source water of said contaminant(s).

9. If such listed unregulated contaminant(s) is confirmed to be present in the source water at a concentration that exceeds FSANZ requirements for bottled water, the plant operator or water dealer **MUST** employ appropriate treatment techniques to remove or to reduce said contaminant in the product water below said concentration, and **MUST** employ a program of periodic monitoring for said contaminant in the source water until such time as said contaminant is not detectable in the source water.

10. To assure that bottled water complies with Section 3, the monitoring, using representative samples derived from the source, **MUST** be performed in accordance with the Standard of Analytical Compliance.

11. For compliance purposes bottlers are **REQUIRED** to maintain documentation confirming the location of the source.

12. When a non-compliance results (including where a test is not conducted) for any one of the analytes, the bottler **MUST** conduct annual tests to re-establish a history of 2 consecutive years with no non-compliances before returning to testing every 4 years, for that analyte/s.

3.2 Hygienic Production of Food Sources

3.2.1 Source Water

If any source does not comply with the Standard of Analytical Compliance for the production of bottled water, the bottler MUST show by analysis, that this treatment reduces the contaminants(s) below the Standard of Analytical Compliance in the finished product.

3.2.2 Finished Product

To assure that bottled water complies with Section 3, the product monitoring, using representative samples derived from the bottled product **MUST** be performed in accordance with the Standard of Analytical Compliance.

3.3 Handling, Storage and Transport

It is a **REQUIREMENT** that storage and transportation of finished food be under conditions that will protect food against physical, chemical and microbial contamination as well as against deterioration of the food and the container.

3.4 Cleaning, Maintenance & Personnel Hygiene at Primary Production

1.Site is **REQUIRED** to be compliant with Food Standards Code sections 3.2.2 and 3.2.3.

2. It is a **REQUIREMENT** that all persons working in direct contact with food, food-contact surfaces and food-packaging materials conform to hygienic practices while on duty to the extent necessary to protect against contamination of food. The gloves should be of an impermeable material.

Section IV – Establishment: Design and Facilities

4.1 Location

Please refer to Food Standards Code 3.2.3 & Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 (1997)).

4.2 Premises and Rooms

1. It is recommended that the bottling room separated from other plant operations or storage areas by tight walls, ceilings and self-closing doors to protect against contamination.

2. It is **REQUIRED** that conveyor openings **NOT** exceed the size required to permit passage of containers.

3. If processing operations are conducted in other than a sealed system under pressure, adequate protection is **REQUIRED** to be provided to preclude contamination of the water and the system.

4. Adequate ventilation is **REQUIRED** to minimise condensation in processing rooms, bottling rooms and in container washing and sanitising areas.

5. It is recommended that the washing and sanitising of containers for bottled water be performed in an enclosed room. It is **REQUIRED** that the washing and sanitising operations be positioned within the room so as to minimise any possible post-sanitising contamination of the containers before they enter the bottling room.

6. Rooms in which product water is handled, processed or held or in which containers, utensils or equipment are washed or held **MUST NOT** open directly into any room used for domestic household purposes.

4.3 Equipment

1. Storage tanks are **REQUIRED** to be of the type that can be closed to exclude all foreign matter.

2. Storage tanks are **REQUIRED** to be adequately vented.

3. It is recommended that HEPA filtration be installed but care is essential to ensure sufficient capacity of the filter to prevent tanks from being sucked in during discharge. Safety devices, designed to prevent tanks from sucking in, may be used.

4.4 Facilities

Many bottled water companies conduct in-house testing, including micro-biological tests. It is important that in-house laboratories are maintained in a clean, sanitary manner, so that no contamination is introduced into water samples from the laboratory environment

This aims to guarantee the validity of the results obtained from tests conducted in-house.

In-house laboratories are **REQUIRED** to be maintained in a clean and appropriate manner for the activities to be conducted without causing contamination by handling or an unsuitable environment.

Site is **REQUIRED** to be compliant with Food Standards Code sections 3.2.2 and 3.2.3.

Laboratory maintenance will include:-

1. The construction, space, lighting and ventilation to be designed to conduct the required activities.

2. All laboratory equipment is adequately sanitised and maintained in proper working order.

3. Appropriate sanitisation of the laboratory will be maintained.

4. Quality control monitoring will be conducted to ensure the reliability and efficacy of tests, test results and laboratory personnel.

5. Calibration of equipment will be carried out as required for each piece of equipment.

6. Access will be restricted to authorised personnel.

7. Staff may only enter wearing clean outer clothing.

8. Rubbish will be kept covered and removed daily.

9. Procedures are documented and document control established for all laboratory operations and records.

10. All contaminated materials are **REQUIRED** to be sterilised prior to disposal.

Section V – Control of Operation

5.1 Control of Food Hazards

Good Manufacturing Practices (GMP) is an integral part of the ABWI Model Code. GMP assists bottlers in producing water of the required standard of safety and suitability for consumption through design, implementation, monitoring and review of effective control systems.

Attention to GMP ensures that the best practices are implemented, to reduce risk by adopting preventative measures to avoid unnecessary and costly practices.

When a bottled water plant is utilising a treatment technology in order to reduce the level of any constituent in its source water below the ABWI Standard of Analytical Compliance, or to prevent a contaminant from entering the product water in amounts that exceed the ABWI Standard of Analytical Compliance, said treatment is to be operated in accordance with the Good Manufacturing Practices set out in this section.

1. It is **recommended** that bottled water be produced in an enclosed filling room/chamber that is under positive pressure of filtered air and using facilities and good manufacturing practices that comply with the requirements of GMP and be properly maintained with supporting records.

2. Bottled water production, including transporting, processing, packaging, and storage, is to be conducted under such conditions and controls as are necessary to minimise the potential for microbiological contamination of the finished product.

3. Bottled water is to be produced under one of the following conditions:- bottled water **MUST** be subject to adequate filtration (to a minimum rating of at least 1 micron or lower) and effective germicidal treatment by ozonation, carbonation at a minimum of three volumes of carbon dioxide, or other proven disinfection regimes OR

4. Bottled water **MUST** be subject to adequate filtration (to a minimum rating of at least 1 micron or lower) and be produced in an enclosed fillroom/chamber that is under positive

pressure, HEPA filtered air; and using facilities and good manufacturing practices that comply with the requirements for GMP, set out in this Section.

5. Bottled water **MUST NOT** be transported or stored in bulk tanks, or processed or bottled through equipment or lines used for any non-food product.

5.2 Key Aspects of Hygiene Control Systems

5.2.1 Treatment of Product Water

1. It is a **REQUIREMENT** that all treatment of product water by ozonation, distillation, ion-exchanging, filtration, ultra-violet treatment, reverse osmosis, carbonation, mineral addition, or any other process is done in a manner so as to be effective in accomplishing its intended purpose.

2. All such processes **MUST** be performed in and by equipment and with substances that will not adulterate the bottled product.

3. It is **REQUIRED** that a record of the type and date of physical inspections of such equipment, conditions found and the performance and effectiveness of such equipment be maintained by the plant.

4. Product water samples MUST be taken after processing and prior to bottling by the plant and analysed as often as is necessary to assure uniformity and effectiveness of the processes performed by the plant.

5. It is a **REQUIREMENT** that the methods of analysis be those approved by the government agency or agencies having jurisdiction.

5.2.2 Containers

1. Multi-service primary containers **MUST** be adequately cleaned, sanitized and inspected just prior to being filled, capped and sealed.

2. Containers found to be unsanitary or defective by the inspection **MUST** be reprocessed or discarded.

3. All multi-service primary containers **MUST** be washed, rinsed and sanitised by mechanical washers or by any other method giving adequate sanitary results.

4. Mechanical washers are **REQUIRED** to be inspected as often as is necessary to assure adequate performance.

5. It is **REQUIRED** that records of physical maintenance, inspections and conditions found, and performance of the mechanical washer be maintained by the plant.

6. Multi-service shipping cases **MUST** be maintained in such condition as to assure they will not contaminate the primary container or the product water.

7. Adequate dry or wet cleaning procedures are **REQUIRED** to be performed as often as necessary to maintain the cases in satisfactory condition.

5.2.3 Cleaning and Sanitising Solutions

1. It is **REQUIRED** that cleaning and sanitising solutions utilized by the plant be sampled and tested by the plant as often as is necessary to assure adequate performance in the cleaning and sanitizing operations.

2. It is **REQUIRED** that records of these tests be maintained by the plant.

5.3 Incoming Material Requirements

5.3.1 Air Under Pressure

1. Whenever air under pressure is directed at product water or a product water-contact surface, it is a **REQUIREMENT** that it be free of oil, dust, rust, excessive moisture and extraneous materials.

2. It is **REQUIRED** that it **NOT** affect the bacteriological quality of the water.

3. It is **recommended** that it **NOT** adversely affect the flavour, colour or odour of the water.

5.3.2 Bulk Water

1. It is **REQUIRED** that bulk water be from an approved source and maintained for sanitary quality at all times.

2. Bottled water that originates from a source that is not protected from surface contamination **MUST** be subjected to ozonation, filtration rated at one micron, or another effective process which removes or destroys the cysts of the parasite Giardia lamblia and Cryptosporidium.

3. Daily in-house total coliform monitoring on finished product **MUST** be done on each product type.

4. It is **recommended** that quarterly rinse/swab tests be performed in-house or by a laboratory using an approved methodology, on containers (incoming as well as those immediately from the washer) and closures.

5.4 Packaging

1. During the process of filling, capping or sealing either single-service or multi-service containers, it is a **REQUIREMENT** that the performance of the filler, capper or sealer be monitored and the filled containers visually or electronically inspected to assure they are sound, properly capped or sealed, and coded and labeled.

2. Containers that are not satisfactory **MUST** be reprocessed or rejected.

3. Bottlers **MUST** only use nontoxic containers and closures.

4. All containers and closures **MUST** be inspected to ascertain that they are free from contamination. At least once each 3 months, it is **recommended** that a bacteriological swab and/or rinse count be made from at least four containers and closures selected just prior to

filling and sealing. No more than one of the four samples may exceed more than one bacteria per millilitre of capacity or one colony per square centimetre of surface area.

5. All samples **MUST** be free of *E. coli* AND/OR coliform organisms. Refer to Standard of Analytical Compliance.

6. The procedure and apparatus for these bacteriological tests are **REQUIRED** to be in conformance with those recognized by the government agency or agencies having jurisdiction.

7. It is a **REQUIREMENT** that tests be performed either by trained plant personnel or by a laboratory using approved methodologies.

8. It is a **REQUIREMENT** that all operations in the receiving, inspecting, transporting, segregating, preparing, manufacturing, packaging and storing of food be conducted in accordance with adequate sanitation principles.

9. It is a **REQUIREMENT** that overall sanitation of the plant be under the supervision of one or more competent individuals assigned responsibility for this function.

10. It is a **REQUIREMENT** that all reasonable precautions be taken to ensure that production procedures do not contribute contamination from any source.

11. It is a **REQUIREMENT** that chemical, microbial, or extraneous-material testing procedures be used where necessary to identify sanitation failures or possible food contamination.

12. All food that has become contaminated to the extent that it is adulterated **MUST** be rejected, or if permissible, treated or processed to eliminate the contamination.

5.5 Source and Operations Water

It is a **REQUIRED** that the product water supply for each plant be from an approved source properly located, protected and operated and is **REQUIRED** to be easily accessible, adequate and of a safe, sanitary quality which is **REQUIRED** to be in conformance at all times with the applicable laws and regulations of the government agency or agencies having jurisdiction.

If different from the product water supply, the operations water supply **MUST** be obtained from an approved source properly located, protected, and operated and **MUST** be easily accessible, adequate, and of a safe, sanitary quality which **MUST** be in conformance at all times with the applicable laws and regulations of the government agency or agencies having jurisdiction.

5.6 Management and Supervision

A bottled water plant **MUST** be operated under the supervision of at least one person qualified by experience, education, and training to operate and maintain the plant's facilities and holds current ABWI Certified Plant Operator qualifications.

5.7 Documentation and Records

1.The objectives & rationale is to maintain sufficient records to comply with requirements and to ensure that records are on hand to respond to authorities, when required

2. Legal requirements vary from jurisdiction to jurisdiction. Often waters are sold in various jurisdictions.

3. It is a **REQUIREMENT** that all records be retained at the plant for not less than 7 years.

4. Various regulations exist across Australia and New Zealand. Hence ABWI is recommending that all records be maintained for a minimum of 7 years. This includes records for HACCP verification, monitoring and validation, process controls, production, cleaning and sanitizing, training, customer complaints and any other records.

5.8 Recall Procedures

Where it is determined, based upon representative samples, risk analysis, information provided by the bottled water supplier, and other information available that the circumstances present an imminent hazard to the public health and that a form of consumer notice or product recall can effectively avoid or significantly minimise the threat to public health, the bottler

MUST initiate a product recall to be conducted in accordance with ABWI Product Recall Procedures.

Section VI – Establishment: Maintenance and Sanitation

Cleaning and sanitation are important activities in a bottled water plant, involving all areas of production. Effective cleaning and sanitising will prevent contamination of products and maintain a clean and hygienic plant.

Effective and efficient cleaning and sanitising procedures ensures that process equipment and factory environments are clean and free of contaminants to ensure products meet the required standards

6.1 Maintenance and Cleaning

1. Site is **REQUIRED** to be compliant with Food Standards Code sections 3.2.2 in relation to Food Safety Practices and General Requirements and 3.2.3.Food Premises and Equipment.

2. Cleaning compounds and sanitizing agents used in cleaning and sanitizing procedures **MUST** be free from undesirable microorganisms and **MUST** be safe and adequate under the conditions of use.

Compliance with these requirements may be verified by any effective means including purchase of these substances under a supplier's guarantee or certification, or examination of these substances for contamination. Only the following toxic materials may be used or stored in a plant where food is processed or exposed:

a)Those required to maintain clean sanitary conditions;

b) Those necessary for use in laboratory testing procedures;

c) Those necessary for plant and equipment maintenance and operation; and

d) Those necessary for use in the plant operations.

3. Toxic cleaning compounds, sanitizing agents, and pesticide chemicals **MUST** be identified, held and stored in a manner that protects against contamination of food, food-contact surfaces or food-packaging materials. It is **recommended** that all relevant regulations from

Federal, State and local government agencies for the application, use or holding of these products be followed.

4. All food-contact surfaces including utensils and food-contact surfaces of equipment **MUST** be cleaned as frequently as necessary to protect against contamination of food.

5. When the surfaces are wet-cleaned, it is a **REQUIREMENT** that, when necessary, they be sanitized and thoroughly dried before subsequent use.

6. Where equipment and utensils are used in a continuous production operation, the utensils and food-contact surfaces of the equipment **MUST** be cleaned and sanitized as necessary.

7. It is **recommended** that single-service articles (such as utensils intended for one-time use, paper cups and paper towel(s) be stored in appropriate containers.

8. It is **REQUIRED** that single service items as described are handled, dispensed, used and disposed of in a manner that protects against contamination of food or food-contact surfaces.

9. It is a **REQUIREMENT** that sanitising agents be adequate and safe under conditions of use. Any facility, procedure or machine is acceptable for cleaning and sanitizing equipment and utensils if it is established that the facility, procedure or machine will routinely render equipment and utensils clean and provide adequate cleaning and sanitising treatment.

6.2 Cleaning Programs

1. The product water-contact surfaces of all multi-service containers, utensils, pipes and equipment used in the transportation, processing, handling and storage of product water **MUST** be clean and adequately sanitised.

2. All product water-contact surfaces **MUST** be inspected by plant personnel as often as necessary to maintain the sanitary condition of such surfaces and to assure they are kept free of scale, evidence of oxidation and other residue.

3. It is a **REQUIREMENT** that the presence of any unsanitary condition, scale, residue or oxidation be immediately remedied by adequate cleaning and sanitising of that product water-contact surface prior to use.

4. It is **REQUIRED** that after cleaning, all multi-service containers, utensils and disassembled piping and equipment be transported and stored in such a manner as to assure drainage and it is **REQUIRED** that they be protected from contamination.

5. It is **REQUIRED** that single-service containers and caps are to be purchased and stored in sanitary closures and kept clean therein in a clean, dry place until used.

6. Prior to use single service containers and caps **ARE REQUIRED** to be examined and as necessary, washed, rinsed and sanitized and **MUST** be handled in a sanitary manner.

7. Filling, capping, closing, sealing and packaging of containers **MUST** be done in a sanitary manner so as to preclude contamination of the bottled water.

8. It is **REQUIRED** that all plant equipment and utensils be suitable for their intended use. This includes all collection and storage tanks, piping, fittings, connections. Bottle washers, fillers, cappers and other equipment which may be used to store, handle, process, package or transport product water.

9. All product water contact surfaces **MUST** be constructed of nontoxic and nonabsorbent material which can be adequately cleaned and sanitized.

10. Instruments and controls used for measuring, regulating or recording temperatures, pH, acidity, water activity, or other conditions that control or prevent the growth of undesirable microorganisms in food are **REQUIRED** to be accurate and adequately maintained, and adequate in number for their designated uses.

10. Bottled water manufacturers who clean and/or refurbish coolers for re-sale or re-hire **MUST** have a cleaning and sanitising procedure in place.

11. It is **REQUIRED** that these procedures include: isolate returned coolers from new or sanitised coolers, clean and sanitise away from process areas where there can be no contamination of raw materials, process lines or finished product, check, clean and sanitise the coolers, repair as required, when completed the coolers will be bagged or boxed in a manner that will minimise the risk of recontamination, store in an appropriate manner.

6.3 Pest Control Systems

Please refer to Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 (1997)).

6.4 Waste Management

Please refer to Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 (1997)).

6.5 Monitoring Effectiveness

1. For those bottlers who own a source and a bottling plant, finished product monitoring is all that is required. Source water monitoring will not be required, aside from hydrogeological requirements as outlined in the Standard of Analytical Compliance.

2. To assure that bottled water complies with Section 3 (Product Quality), it is **REQUIRED** that the testing requirements stipulated in the **Standard of Analytical Compliance** of this Code are followed, using representative samples derived from the bottled product.

3. Bottlers who have established history of compliance with the requirements for testing and meeting the limits set for organics (listed in Section XI Standard of Analytical Compliance) of a representative sample of finished product water, over 2 consecutive years, may then carry out tests for organics and volatile organics every 4 years.

4. **It is recommended** that bottlers conduct in-house yeast and mould tests at least once per week on a sample of each type of finished product.

5. **It is recommended** that bottlers conduct in-house Pseudomonas aeruginosa tests at least once per week on a sample of each type of finished product.

Section VII – Establishment: Personal Hygiene

7.1 Health Status

Please refer to Australian New Zealand Food Standards Code 3.2.2, Division 4 and Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 (1997)).

7.2 Illness and Injuries

Please refer to Australian New Zealand Food Standards Code 3.2.2, Division 4 and Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 (1997)).

7.3 Personal Cleanliness

Please refer to Australian New Zealand Food Standards Code 3.2.2, 3.2.3, Division 4 and Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 (1997)).

7.4 Personal Behaviour

Please refer to Australian New Zealand Food Standards Code 3.2.2, 3.2.3, Division 4 and Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 (1997)).

7.5 Visitors

Please refer to Australian New Zealand Food Standards Code 3.2.2, 3.2.3, Division 4 and Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 (1997)).

Section VIII – Transportation

8.1 General

Please refer to Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 (1997)).

8.2 Requirements

1. It is a **REQUIREMENT** that bulk water be loaded, transported and unloaded in a sanitary manner to ensure the overall safety and quality of the finished bottled water product.

2. It is a **REQUIREMENT** that bulk water tankers, storage tanks, hoses, pumps and connections used for loading, transporting and unloading of bulk water be constructed of materials that are approved food-grade, smooth, non-absorbent and easily cleanable such as stainless steel (300 series).

3. It is **recommended** that tankers used for the hauling of bulk water bottling purposes be solely dedicated for that purpose. If the tanker is used for transporting other foods, it is a **REQUIREMENT** that the tanker be properly cleaned and sanitised in accordance with the GMP regulations before the loading of a bulk shipment of potable water intended for human consumption.

4. It is a **REQUIREMENT** that tankers be cleaned, sanitised and inspected internally for tank integrity on a routine basis.

5. Tankers that have been previously used to haul non-food commodities such as toxic materials, petroleum products, or other harmful substances **MUST NOT** be used to haul bottled water for human consumption.

6. It is a **REQUIREMENT** that tankers used for the transporting of potable water be properly secured with manhole cover gaskets and safety seals.

7. It is **REQUIREMENT** that connections, hoses and pumps used for the loading and unloading of bulk water be properly maintained and stored to prevent contamination.

8. When not in use, pumps, hoses, connections and fittings are **REQUIRED** to be properly capped, securely stored and protected from possible contamination.

9. Representative samples **MUST** be taken from shipments of bulk water for the analyses of coliform bacteria and Heterotrophic Plate Count (HPC), in compliance with the Standard of Analytical Compliance.

10. It is a **REQUIREMENT** that the minimum frequency of sampling is one sample from each tanker on a weekly basis or from each delivery if the delivery frequency is less than weekly. This data will be collected and used to identify a gradual or sudden increase in HPC, indicating some form of contamination is taking place to allow the bottler to investigate.

11. Records are **REQUIRED** to be maintained that include but are not limited to:

a) Name of the transporter and/or driver

b) Tanker number

c) Date of shipment

d) Vendor and location of the source water

e) Name of the receiver and the location to which the water was shipped

f) Date of delivery

g) Date of tanker cleaning and sanitisation (includes name of operator)

h) The concentration of the disinfectant residual (if used) at the time of loading and unloading

i) Results of all microbiological testing as specified.

12. It is **REQUIRED** that, in order to minimise the potential for microbiological contamination of the finished product, bottled water NOT be transported, stored, processed, or bottled in or

through lines or equipment through which has passed milk, fruit juice, or other food products likely to contribute nutrients for microbial growth, unless said lines, equipment, or holding tanks have been cleaned in accordance with section 18, 19 of this section.

13. Bottled water may be processed through lines or equipment used also for other food products under the following conditions:

a) It is **REQUIRED** that process lines, including storage tanks and associated equipment, be used exclusively for the production of bottled water, except for filling equipment, which may be used also for filling, other food products.

b) Before being used for the bottling of water, it is a **REQUIREMENT** that filling equipment which is designed to be cleaned in-place and which is used for filling other food products be thoroughly cleansed and sanitised in-place in accordance with the manufacturer's specifications and in compliance with GMP and the supplementary procedures that follow in this section.

c) Immediately following completion of filling operations for any other food product other than water, it is **REQUIRED** that the filler be thoroughly rinsed internally and externally with potable water meeting Australian Drinking Water Guidelines (N.B. Chlorinated water, at 1-3 ppm, is NOT potable).

d) It is a **REQUIREMENT** that in accordance with filler manufacturer's instructions, any parts that are not designed to be cleaned in-place be disassembled and removed. All of these parts **MUST** be cleansed and sanitised prior to reassembly using appropriate cleaning and sanitizing procedures, as specified below.

e) Sanitising operations, including those performed by chemical means or by any other means such as circulation of live steam or hot water, **MUST** be adequate to effect sanitisation of the intended product water-contact surfaces and any other critical area.

14. **It is recommended that** the plant maintain a record of the intensity of the sanitising agent and the time duration that the agent was in contact with the surface being sanitized. It is **REQUIRED** that the following times and intensities be considered a minimum.

a) Steam in enclosed system: At least 76.6° C for at least 15 minutes or at least 93.3° C for at least 5 minutes OR

b) Hot water in enclosed system: At least 76.6° C for at least 15 minutes or at least 93.3° C for at least 5 minutes OR

c) Chemical sanitizers are **REQUIRED** to be equivalent in bacterial action to a minute exposure of 50 parts per million of available chlorine at 13.9° C when used as an immersion or circulation solution. Chemical sanitizers applied as a spray or fog **MUST** have as minimum 100 parts per million of available chlorine at 13.9° C or its equivalent in bactericidal action. OR

d) 0.1 part per million ozone water solution in an enclosed system for least 5 minutes with consideration being given to the organic load and temperature of the water.

15. It is **REQUIRED** that all surfaces of the filler that do not contact food products be cleaned manually so as to render all surfaces clean and free of any residues.

16. It is a **REQUIREMENT** that the filler be prepared and all appropriate connections made in accordance with the filler manufacturer's instructions to place the filler in the clean-in-place mode. The following procedures will be followed:

17. If using an alkaline cleaning solution, the appropriate strength **MUST** be re-circulated through the filler to provide effective cleaning of all product contact surfaces, with a minimum re-circulation time of 20 minutes at a temperature between 60 and 75 degrees Centigrade. Alternatively a proven acid cleaning solution with an appropriate method as recommended by the supplier, may be used.

18. The cleaning solution **MUST** be drained and followed with a potable water rinse-to-drain; or otherwise removed from the system; for the removal of all residual cleaner alkalinity. This

step may be supplemented by the application of an acidified rinse prior to the potable water rinse in order to neutralise any residual alkalinity on product contact surfaces.

19. Following reassembly of all parts to place the filler into the product mode and just prior to bottling water, the filler **MUST** be sanitised in-place in accordance with procedures in this section.

20. Alternate cleaning, rinsing, or sanitising operations or processes not described in this Section **MUST** be consistent with Australian or New Zealand regulatory requirements.

8.3 Use and Maintenance

Please refer to Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 (1997)).

Section IX – Product Information and Consumer Awareness

9.1 Lot Identification

Please refer to Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 (1997)).

9.2 Product Information

Please refer to Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 (1997)).

9.3 Labelling

1. Bottled water product labeling **MUST** comply with all applicable provisions under FSANZ Food Standards Code and Appendices. The Joint Australia New Zealand Food Standards Code (FSC) is administered by FSANZ and sets down mandatory labelling requirements.

2. Bottled water product labeling **MUST** comply with the provisions of the FSANZ Code of Practice on Nutrient Claims in Food Labels and in Advertisements.

3. Bottled Water product labeling **MUST** also be in accordance with the Australian Competition and Consumer Commission (ACCC) who are responsible for bringing about compliance with the Australian Consumer Law 2010.

4. Bottled water product labeling **MUST** also comply with applicable provisions set out in National Trade Measures Regulations 2009 administered by the National Measurement Institute (NMI).

5. Bottled water product labeling **MUST** also comply with applicable provisions set out in the Australian National Standard for Organic & Biodynamic Products (DR08147), administered by Organic Federation of Australia (OFA) and Department of Agriculture, Forestry and Fisheries (DAFF).

6. Bottled water product labeling, where manufactured outside of Australia and New Zealand **MUST** comply with local legislative provisions in addition to requirements in Australia and New Zealand.

7. Where water is neither bottled nor sold in Australia and /or New Zealand, the requirements of equivalent local regulation applies

8. For information on the current requirements of the Food Standards Code, bottlers may contact FSANZ at:

Food Standards Australia New Zealand (FSANZ)

55 Blackall Street
Barton ACT 2600
Canberra MC ACT 2610
Ph. 02 6271 2222
Fax 02 6271 2278

9.4 Consumer Information

Please refer to Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 (1997)).

Section X – Training

10.1 Awareness and Responsibilities

Please refer to Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 (1997)) and Australian New Zealand Food Standards Code.

10.2 Training Programs

Said person operating the plant **MUST** hold a certificate demonstrating that he or she has successfully completed the ABWI Certified Plant Operator course and be on site at all times during product manufacture. This requirement is to be implemented as of the 1st January 2006. The person supervising a plant will be that person responsible for the development and maintenance of processes and procedures.

This course may be conducted by ABWI or by a third party organisation that is acceptable to ABWI. This course covers periodic instruction and testing in plant, source and product sanitation, operation and maintenance of water treatment technology, and the maintenance and monitoring of source and product water quality in accordance with these bottled water standards.

10.3 Instruction and Supervision

Please refer to Recommended International Code of Practice: General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3 (1997)).

10.4 Refresher Training

Successful refresher examination of Certified Plant Operator qualifications must be revisited no later than three years post previous review, by approved ABWI examination.

Section XI - Standard of Analytical Compliance

The Standard of Analytical Compliance (the Standard) seeks to ensure that the source water and finished product meet criteria that minimise the risk of hazard from biological, chemical or physical contaminants in the finished product.

All bottled water **MUST** be from an Approved Source, and **MUST** meet the Standard for source testing. If any source does not comply with the Standard, the bottler **MUST** show by analysis that the treatment reduces the contaminant(s) below the Standard in the finished product.

Bottlers **MUST** have a Hazard Analysis Critical Control Point (HACCP) program in their plants which is audited and certified by accredited third party.

Note with regard to testing summary below -

1. Members that provide source water need to perform all required tests on source water used for **ALL** types of finished products.
2. Members who own a bottling plant need complete to **ALL** required tests in testing summary on finished product.
3. Those members owning both a source and bottling plant need to complete **ALL** required tests in testing summary on finished product.

11.1 Testing Summary

Test Requirements	Source*	Tanker	Finished Product
Hydrogeology - see page 4			
Hydrogeological study	Every four years, external		
Microbiology – see page 5			
Total Plate Count		Weekly in house, or with each delivery if deliveries are less often than weekly	

Coliforms AND/OR Escherichia coli	Weekly, external, or with each load taken, if taken less often than weekly OR Monthly external, in conjunction with daily in-house	Weekly in house, or with each delivery if deliveries are less often than weekly	Daily in-house, in conjunction with monthly external
Yeasts and Moulds			Weekly in-house RECOMMENDATION
Pseudomonas aeruginosa OR Heterotophic Plate Count			Weekly in-house RECOMMENDATION
Chemistry – see page 7			
Physical	Annual, external		Annual, external
Radiological	Every four years, external		
Inorganics	Annual, external		Annual, external
Organics and Volatile Organics	Every four years once a history of two years compliance has been established		Every four years once a history of two years compliance has been established

* Source testing only necessary when finished product testing is not being undertaken, and source certification is required.

11.2 Hydrogeology of Source

Approval of the source water product derived from a source other than a public water supply **MUST** be based upon a field inspection of the source, and a review of information prepared by a professionally qualified hydrogeologist. This review **MUST** demonstrate the integrity of the source and safety of the catchment operations, and that **MUST** include:

a) An evaluation of the chemical, physical, microbiological, and radiological characteristics of the source.

b) A report on the regional geology surrounding the site and the specific site geology. A description of the vertical and horizontal extent of the source aquifer, using existing data. The information will be used to define the recharge area of the aquifer, or in the case of regional aquifers, the zone of influence of the subject source.

c) A report detailing the development of the source; the method of construction including spring design, well installation, surface catchment, and intake structures; and transmission facilities as appropriate.

d) A watershed survey of the recharge area or zone of influence of subject source that identifies and evaluates actual and potential sources of contamination, including any reported discharge that may affect the source.

e)Based on the findings in item (d), a plan for special monitoring of any significant contaminant source and for taking restrictive preventive or corrective measures as appropriate to protect the source water.

It is a **REQUIREMENT** that a land-use assessment be conducted every 4 years by an appropriately trained person, to assess changes in local land-use that may impact on an underground source, where the water is sourced from an underground source.

It is a **REQUIREMENT** that the plant operator be responsible for sampling and analysis of all approved sources for the contaminants specified in the Standard of Analytical Compliance. Such monitoring is **REQUIRED** to be at the frequencies specified.

In lieu of source monitoring required by this Section, a plant operator using a public water system as its water supply is **REQUIRED** to obtain and display a certificate from said system demonstrating that the public water system conducts the monitoring required.

Where a bottled water plant operator, water dealer, or regulatory agency knows or has reason to believe that a contaminant not otherwise monitored is present in the source water because

of a spill, release of a hazardous substance, or otherwise, and its presence would create a potential health hazard to consumers, the plant operator or water dealer upon receipt of such information **MUST** monitor the source water for said contaminant.

Detection of contaminant(s) in source monitoring required pursuant to Section 10 **MUST** be followed immediately by a program of periodic monitoring to confirm the presence in the source water of said contaminant(s). If such listed unregulated contaminant(s) is confirmed to be present in the source water at a concentration that exceeds FSANZ requirements for bottled water, the plant operator or water dealer **MUST** employ appropriate treatment techniques to remove or to reduce said contaminant in the product water below said concentration, and **MUST** employ a program of periodic monitoring for said contaminant in the source water until such time as said contaminant is not detectable in the source water.

To assure that bottled water complies with Section 3 (Product Quality), the testing requirements for coliform, inorganics, physical, radiological, organics and volatile organics of the Code should be followed, using representative samples derived from the source.

For compliance purposes bottlers are **REQUIRED** to maintain documentation confirming the location of the source.

Water source owners who have established a history of compliance with the requirements for testing and meeting the limits set for organics and volatile organics of a representative sample of source water, over 2 consecutive years, may then carry out tests for organics and volatile organics every 4 years. When a non-compliance results (including where a test is not conducted) for any one of the analytes, the bottler **MUST** conduct annual tests to re-establish a history of 2 consecutive years with no non-compliances before returning to testing every 4 years, for that analyte/s.

11.3 Microbiology

11.3.1 Source Water Microbiological Limits

Members that bottle their source water need only perform required tests on finished product, however source water supplier members must undertake microbiological tests if they distribute their product by tanker directly to customers or require independent source certification.

Testing at the source is required to be undertaken at regular intervals and utilizing representative samples. A representative sample may be identified by that which reflects characteristics of each entire batch, and takes into consideration appropriate sample size and frequency.

Coliforms must be tested

a)weekly, external, or with each load taken if taken less often than weekly or

b)monthly external in conjunction with daily in- house.

Tabulated below,

- n means the minimum number of sample units.
- c means the maximum allowable number of defective sample units, defective sample unit means a sample unit in which a microorganism is detected in a sample unit of a food at a level greater than m.
- m means the acceptable microbiological level and
- M means the level when exceeded in one or more samples would cause the lot to be rejected.

Table 1 – Microbiological Testing Requirements for Source Water*

	Organism	n	c	m	M*
REQUIRED	E. coli AND/OR coliforms	3	0	0	0

*Note: On occasion of external analysis being positive the bottler must revert to weekly external testing until four consecutive absence results are achieved. The bottler must continue daily in-house coliform tests.

Table 2 – Microbiological Testing Requirements for Tanker Water

	Organism	n	c	m	M*
REQUIRED	Total Plate Count	3	0	0	0
REQUIRED	E. coli AND/OR coliforms	3	0	0	0

11.3.2 Bottled Water Microbiological Limits

Representative samples are required for testing daily in-house, in conjunction with monthly external testing. Two additional tests, being yeasts and moulds and P. aeruginosa or heterotrophic plate count are recommended subject to validation and verification procedures in house.

Table 3 – Microbiological Testing Requirements for Bottled Water*

	Organism	n	C	m	M*
REQUIRED	E. coli AND/OR coliforms	3	0	0	0
RECOMMENDATION	Yeasts and moulds	3	-	-	-
RECOMMENDATION	Pseudomonas aeruginosa OR Heterotrophic Plate Count	3	-	-	-

*Note: On occasion of external analysis being positive the bottler must revert to weekly external testing until four consecutive absence results are achieved. The bottler must continue daily in-house coliform tests.

11.4 Chemistry

11.4.1 Physical Properties of Bottled and Source Water

These physical parameters are for aesthetic values and the limits are provided for guidance only.

Table 4 – Physical Properties

Attribute	Maximum Indicative
Colour	< 5 units
Turbidity	< 0.5 NTU
pH	3.5 - 8.5
Odour	3 T.O.N.
TDS	minimum of 250 ppm for mineral water

11.4.2 Radionuclide Testing of Source Water

Table 5 – Standard for Radionuclide Testing of Source Water

Attribute	Limit
*Gross Alpha	15 pCi/L
**Gross Beta	50 pCi/L

Radionuclide testing for source water is required every four years.

Please note the below conversion method to convert **pCi/L** to **mBq/L**

pCi/L (picocurie per liter) multiply (X) 0.037 to obtain = Bq/L (becquerel per liter)

* If Gross Alpha is greater than 5, analyze for Radium 226 and Radium 228. Their total should not exceed 5 pCi/L.

** If Gross Beta is greater than 8 pCi/L, analyze for Strontium 90. If Gross Beta is greater than 50 pCi/L, analyze for Tritium and other man-made nuclides.

11.4.3 Inorganic Compounds in Source or Bottled Water

Table 6 - Maximum Contaminant Level Inorganic Compounds (mg/L)

ANALYTE	CAS Number	ABWI LIMIT **	4th Ed WHO DWG + FSANZ
Antimony	7440-36-0	0.006	0.02
Arsenic	7440-38-2	0.05	0.01
Barium	7440-39-3	1.0	0.7
Beryllium	7440-41-7	0.004	NA
Borate (calculated as H_3BO_3)	7440-42-8	30	NA
Bromate	7789-38-0 (Na) 7758-01-2 (K)	0.02	0.01
Cadmium	7440-43-9	0.005	0.003
Chloramine	10599-90-3		NA
Chloride *	16887-00-6	250.0	NA
Chlorine (free)	NA	<0.1	NA
Chlorite	14998-27-7		0.7
Chromium	7440-47-3	0.05	0.05
Copper *	7440-50-8	1.0	2.0
Cyanide	57-12-5	0.1	NA
Fluoride (Calculated as F^-)	16984-48-8	1.5	1.0****
Iron *	8053-60-9	0.3	0.3
Lead	7439-92-1	0.005	0.01
Manganese *	7439-96-5	0.05	0.05
Mercury	7439-97-6	0.001	0.006
Molybdenum	7439-98-7		NA
Nickel	8049-31-8	0.1	NA
Nitrate	122019-28-7	10.0 (as N)	50
Nitrite	14797-65-0	1.0 (as N)	3
Organic matter ($KMnO_3$ digested as O_2)	NA	3.0	3.0
Selenium	7782-49-2	0.01	0.04
Silver ***	97161-97-2	0.025	NA
Sulphate *	18785-72-3	250.0	NA
Sulphide (calculated as H_2S)	18496-25-8	0.05	0.05
Thallium	82870-81-3	0.002	NA
Zinc *	7440-66-6	5.0	NA

* These compounds are classified as aesthetic, non-health related.

**The ABWI limit listed is the lowest limit of either the ABWI and FSANZ regulations.

*** As per WHO guidelines there is inadequate data to permit derivation of health- based guideline value

****As per FSANZ adopted level (not official level for WHO)

11.4.4 Organic Compounds in Bottled or Source Water

Table 7 - Maximum Contaminant Level Organic Compounds (mg/L)

ANALYTE	CAS NUMBER	ABWI LIMIT	FSANZ LIMIT
Di(2-ethylhexyl)adipate	70147-21-6	0.4	NA
Alachlor	15972-60-8	0.002	0.02
Atrazine	1912-24-9	0.003	0.1
Benzo(a)pyrene	50-32-8	0.0002	0.0007
Carbofuran	1563-66-2	0.007*	0.007
Chlordane	57-47-9 *or* 12789-03-6	0.0002*	0.0002
Dalapon (2,2-dichloropropanoic acid)	75-99-0	0.2	NA
Dibromochloropropane	96-12-8	0.0002	0.001
Dinoseb (2-butan-2-yl-4,6-dinitrophenol)	89396-94-1	0.007	NA
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD, dioxin)	1746-01-6	$3x10^{-8}$	
Diquat	2764-72-9 or 85-007	0.02	NA
Endothall	145-73-3	0.1	NA
Endrin	72-20-8	0.0002	0.0006
Glyphosate	1071-836	0.7	NA
Hexachlorobenzene	118-74-1	0.001	NA
Hexachlorocyclopentadiene	77-47-4	0.05	NA
Lindane	58-89-9	0.0002	0.002
Methoxychlor	72-43-5	0.02*	0.02
Oxamyl (vydate)	23135-220	0.2	NA
Pentachlorophenol	87-86-5	0.001	0.009
Di(ethylhexyl)phthalate	82208-43-3	0.006	0.008
Picloram	1918-02-1	0.5	NA
Simazine	122-34-9	0.002*	0.002
Toxaphene	101053-41-2	0.003	
2,4-D (dichlorophenoxy acetic acid)	120-365 or 15165-670	0.03*	0.03
Ethylene dibromide	80-97-7	0.00005	
Heptachlor	76-44-8	0.0004	NA
Heptachlor epoxide	1024-57-3	0.0002	
(PCB) polychlorinated biphenyls		0.0005	
2,4,5-TP (silvex)	93-72-1	0.009*	0.009
Phenolics		0.001	

*Revised ABWI Limits, 2013

11.4.5 Volatile Organic Compounds in Bottled or Source Water

Table 8 - Maximum Contaminant Level Volatile Organic Compounds (mg/L)

ANALYTE	CAS Number	ABWI LIMIT	FSANZ LIMIT
Trichloroethylene	79-01-6	0.005	0.02
Carbon tetrachloride		0.004*	0.004
Vinyl chloride		0.0003*	0.0003
1,2-Dichloroethane	107-06-2	0.005	0.05
Benzene		0.005	0.01
1,1,-Dichloroethylene		0.007	NA
1,1,1,-Trichloroethane	71-55-6	0.200	
1,2,4-Trichlorobenzene	120-82-1	0.07	NA
1,1,2-Trichloroethane	79-00-5	0.005	
o-Dichlorobenzene		0.600	
p-Dichlorobenzene		0.075	0.3
Cis-1,2-Dichloroethylene	540-59-0	0.050*	0.05
trans-1,2-Dichloroethylene		0.100	
1,2-Dichloropropane	78-87-5	0.005	0.04
Ethylbenzene	100-41-4	0.3*	0.3
Dichloromethane	75-09-2	0.005	0.02
Monochlorobenzene		0.100	
Styrene	100-42-5	0.02*	0.02
Tetrachloroethylene	127-18-4	0.005	0.04
Trihalomethane		0.010	
Toluene	108-88-3	0.7*	0.7
Xylene	1330-20-7	0.5*	0.5

*Revised ABWI Limits, 2013

11.4.6 Additional Volatile Organic Compound Screening in Source or Bottled Water

The following compounds are also detected as part of the screening test for Volatile Organic Compound analysis. These chemicals are part of the audit code in addition to the FSANZ adopted limits in the WHO Drinking Water Guidelines 4th Edition.

Table 9 – Additional Volatile Organic Compound Screening

Compound	CAS
Bromobenzene	108-86-1
Bromochloromethane	83847-49-8

Bromodichloromethane	75-27-4
Bromoform	75-25-2
Bromomethane	74-83-9
Butylbenzene,n-	
Butylbenzene,sec-	68411-44-9
Butylbenzene,tert-	
Chlorodibromomethane	124-48-1
Chloroethane	77792-41-7
Chloromethane	74-87-3
Chlorotoluene,o-	27987-13-9
Chlorotoluene,p-	
Dibromomethane	74-95-3
Dichlorodifluoromethane	75-71-8
Dichloroethane,1,1-	75-34-3
Dichloropropane,1,3-	142-28-9
Dichloropropane,2,2-	594-20-7
Dichloropropene,1,1-	
Dichloropropene,cis-1,3-	
Dichloropropene,trans-1,3-	99614-02-5, 542-75-6
Fluorotrichloromethane	91315-61-6, 75-69-4
Hexachlorobutadiene	87-68-3
Isopropyltoluene,p-	99-87-6
Methyl-Ethyl-Ketone	
Naphthalene	91-20-3

Propylbenzene,iso-	
Propylbenzene,n-	103-651
Tetrachloroethane,1,1,1,2-	
Tetrachloroethane,1,1,2,2-	
Trichlorobenzene,1,2,3-	87-61-6
Dichlorobenzene,m-	
Trichloropropane,1,2,3-	
Trichlorotrifluoroethane	76-13-1
Trimethylbenzene,1,2,4-	95-63-6
Trimethylbenzene,1,3,5-	108-67-8

CAS obtained from chemindustry.com and commonchemistry.org.

Section XII – Model Code Checklist

The following check points have been extracted from the body of the Model Code.

Further detail on each point may be obtained from the relevant Section of the Code.

Bottlers should note:-

• The Code requires compliance with a number of **MUST** and **REQUIRED** points. Full compliance is required.

• For those points that are **REQUIRED** non-conformance may be avoided by demonstration of measures of validation and/or verification.

12.1 Introduction

Source owners may seek separate Source Certification. In this event they **MUST** meet the requirements for an approved source.

Approved sources **MUST** also carry out the annual testing regime. Source owners should refer to the summary of testing.

12.2 Definitions and Acronyms

ABWI Members are **REQUIRED** comply with the definitions described.

The bottler **MUST** maintain in the plant a current license or certificate of approval of the source where issued (by state or department).

Groundwater **MUST** not be under the direct influence of surface water.

It is a **REQUIREMENT** that mineral water have a level of total dissolved solids of greater than 250 ppm.

12.3 Product Quality

1. All bottled water **MUST** meet the Standard of Analytical Compliance for source testing, as prescribed in limits specified therein.

2. Bottlers **MUST** implement a third party audited HACCP program in their plants.

3. For inclusion in the list, the hazard **MUST** be of such a nature that its prevention, elimination or reduction to acceptable levels is essential to the production of a safe food.

4. All significant hazards identified during the hazard analysis **MUST** be addressed.

5. All three types of hazards (physical, chemical and biological, including microbiological) **MUST** be addressed and controlled.

6. It is **recommended** that the information developed during the hazard analysis enable the establishment to identify which steps in their processes are CCP's.

7. It is a **REQUIREMENT** that all CCP'S be carefully developed and documented.

8.A critical limit is defined as a criterion that **MUST** be met for each preventive measure associated with a CCP.

9. Established critical limits **MUST** be justifiable in relation to knowledge available.

10. Fillers need to identify critical limits in their HACCP plans that **MUST** be met at each CCP to be certain that the hazard is controlled.

11. Critical limits **MUST** reflect relevant regulations.

12. If critical limits more stringent than regulatory limits or requirements are set, then the establishment is **REQUIRED** to meet those more stringent limits.

13. Monitoring is used to determine when a deviation occurs at a CCP; therefore, monitoring procedures are **REQUIRED** to be effective.

14. When continuous monitoring is not feasible, frequencies **MUST** be sufficient to ensure that the CCP is under control.

15. It is **REQUIRED** that personnel assigned to monitoring activities be properly trained and assessed for competence to report all results, including any unusual occurrences, so that adjustments can be made and any processes or products that do not meet critical limits are identified so that immediate corrective actions may be taken.

16. In such instances, corrective action plans **MUST** be in place to (1) determine the disposition of the non-compliant product and (2) identify and correct the cause of the deviation to regain control of the CCP.

17. Corrective actions **MUST** be specified in sufficient detail to ensure that no public health hazard exists after these actions have been taken.

18. It is a **REQUIREMENT** that a bottlers HACCP plan and all associated records be maintained on file at the establishment and provides several examples of records that could be maintained, such as those relating to incoming ingredients, product safety, processing, packaging, storage and distribution, deviations and corrective actions and employee training.

19. Thus, a HACCP plan is **REQUIRED** to provide for a record keeping system that will document the establishment's CCP monitoring, verification activities and deviation records.

20. It is **REQUIRED** that establishments frequent review their HACCP plan, verification that the HACCP plan is being correctly followed, review of CCP records and determinations that appropriate management decisions and product dispositions are made when deviations occur.

21. It is **REQUIRED** that such reviews include an on-site review and verification of all flow diagrams.

22. It is **REQUIRED** that the HACCP system includes a set of verification tasks to be performed by establishment personnel.

12.4 Good Manufacturing Practices

1. **It is recommended** that bottled water be produced in an enclosed filling room/chamber that is under positive pressure of filtered air and using facilities and good manufacturing practices

that comply with the requirements of GMP and be properly maintained with supporting records.

2. Bottled water **MUST** be subject to adequate filtration (to a minimum rating of at least 1 micron or lower) and effective germicidal treatment by ozonation, carbonation at a minimum of three volumes of carbon dioxide, or other proven disinfection regimes OR bottled water **MUST** be subject to adequate filtration (to a minimum rating of at least 1 micron or lower) and be produced in an enclosed fillroom/chamber that is under positive pressure, HEPA filtered air; and using facilities and good manufacturing practices that comply with the requirements for GMP, set out in this Section.

3. Bottled water **MUST** NOT be transported or stored in bulk tanks, or processed or bottled through equipment or lines used for any non-food product.

4. It is **REQUIRED** that bulk water be from an approved source and maintained for sanitary quality at all times.

5. It is a **REQUIREMENT** that bulk water be loaded, transported and unloaded in a sanitary manner to ensure the overall safety and quality of the finished bottled water product.

6. It is a **REQUIREMENT** that bulk water tankers, storage tanks, hoses, pumps and connections used for loading, transporting and unloading of bulk water be constructed of materials that are approved food-grade, smooth, non-absorbent and easily cleanable such as stainless steel (300 series).

7. It is **recommended** that tankers used for the hauling of bulk water bottling purposes be solely dedicated for that purpose.

8. If the tanker is used for transporting other foods, it is a **REQUIREMENT** that the tanker be properly cleaned and sanitised in accordance with the GMP regulations immediately before the loading of a bulk shipment of potable water intended for human consumption.

9. It is a **REQUIREMENT** that tankers be cleaned, sanitised and inspected internally for tank integrity on a routine basis.

10. Tankers that have been previously used to haul non-food commodities such as toxic materials, petroleum products, or other harmful substances **MUST NOT** be used to haul bottled water for human consumption.

11. It is a **REQUIREMENT** that tankers used for the transporting of potable water be properly secured with manhole cover gaskets and safety seals.

12. It is **REQUIREMENT** that connections, hoses and pumps used for the loading and unloading of bulk water be properly maintained and stored to prevent contamination.

13. When not in use, pumps, hoses, connections and fittings are **REQUIRED** to be properly capped, securely stored and protected from possible contamination.

14. Representative samples **MUST** be taken from shipments of bulk water for the analyses of coliform bacteria and Heterotrophic Plate Count (HPC).

15. It is a **REQUIREMENT** that the minimum frequency of sampling is one sample from each tanker on a weekly basis or from each delivery if the delivery frequency is less than weekly.

16. Records are **REQUIRED** to be maintained as specified in Section 12 that include but are not limited to:

(a) Name of the transporter and/or driver

(b) Tanker number

(c) Date of shipment

(d) Vendor and location of the source water

(e) Name of the receiver and the location to which the water was shipped

(f) Date of delivery

(g) Date of tanker cleaning and sanitisation (includes name of operator)

(h) The concentration of the disinfectant residual (if used) at the time of loading and unloading

(i) Results of all microbiological testing as specified.

17. It is **REQUIRED** that, in order to minimise the potential for microbiological contamination of the finished product, bottled water NOT be transported, stored, processed, or bottled in or through lines or equipment through which has passed milk, fruit juice, or other food products likely to contribute nutrients for microbial growth, unless said lines, equipment, or holding tanks have been cleaned in accordance with subpart (d) of this Section.

18. It is **REQUIRED** that process lines, including storage tanks and associated equipment, be used exclusively for the production of bottled water, except for filling equipment, which may be used also for filling, other food products.

19. Before being used for the bottling of water, it is a **REQUIREMENT** that filling equipment which is designed to be cleaned in-place and which is used for filling other food products be thoroughly cleansed and sanitised in-place in accordance with the manufacturer's specifications and in compliance with GMP and the supplementary procedures that follow in paragraph (d) to (f), of this Section.

20. Immediately following completion of filling operations for any other food product other than water, it is **REQUIRED** that the filler be thoroughly rinsed internally and externally with potable water (NB. Chlorinated water, at 1-3 ppm, is NOT potable).

21. It is a **REQUIREMENT** that in accordance with filler manufacturer's instructions, any parts that are not designed to be cleaned in-place be disassembled and removed.

22. All of these parts **MUST** be cleaned and sanitised prior to reassembly using appropriate cleaning and sanitizing procedures, as specified below.

23. Sanitising operations, including those performed by chemical means or by any other means such as circulation of live steam or hot water, **MUST** be adequate to effect sanitisation of the intended product water-contact surfaces and any other critical area.

24. **It is recommended that** the plant maintain a record of the intensity of the sanitising agent and the time duration that the agent was in contact with the surface being sanitized.

25. It is **REQUIRED** that the following times and intensities be considered a minimum.

(i) Steam in enclosed system:

At least 76.6° C for at least 15 minutes or at least 93.3° C for at least 5 minutes

(ii) Hot water in enclosed system:

At least 76.6° C for at least 15 minutes or at least 93.3° C for at least 5 minutes

(iii) Chemical sanitizers are **REQUIRED** to be equivalent in bacterial action to a minute exposure of 50 parts per million of available chlorine at 13.9° C when used as an immersion or circulation solution.

26. Chemical sanitizers applied as a spray or fog **MUST** have as minimum 100 parts per million of available chlorine at 13.9° C or its equivalent in bactericidal action.

27. It is **REQUIRED** that all surfaces of the filler that do not contact food products be cleaned manually so as to render all surfaces clean and free of any residues.

28. It is a **REQUIREMENT** that the filler be prepared and all appropriate connections made in accordance with the filler manufacturer's instructions to place the filler in the clean-in-place mode.

29. If using an alkaline cleaning solution, the appropriate strength **MUST** be re-circulated through the filler to provide effective cleaning of all product contact surfaces, with a minimum re-circulation time of 20 minutes at a temperature between 60 and 75 degrees Centigrade.

30. The cleaning solution **MUST** be drained and followed with a potable water rinse-to-drain; or otherwise removed from the system; for the removal of all residual cleaner alkalinity.

31. Following reassembly of all parts to place the filler into the product mode and just prior to bottling water, the filler **MUST** be sanitised in-place in accordance with procedures (g) (vi) of this Section.

32. Alternate cleaning, rinsing, or sanitising operations or processes not described in this Section **MUST** be consistent with Australian or New Zealand regulatory requirements.

33. Bottled water that originates from a source that is not protected from surface contamination **MUST** be subjected to ozonation, filtration rated at one micron, or another effective process which removes or destroys the cysts of the parasite Giardia Lamblia and Cryptosporidium.

34. Daily in-house total coliform monitoring on finished product **MUST** be done on each product type.

35. It is **recommended** that quarterly rinse/swab tests be performed in-house or by a laboratory using an approved methodology, on containers (incoming as well as those immediately from the washer) and closures.

36. Each bottled water plant is **REQUIRED** to develop and maintain procedures for the notification of the Government Authorities, consumer notification, and product recall, and the water plant manager **MUST** implement any said procedure as necessary with respect to any product for which the operator or the Government Authorities knows or has reason to believe circumstances exist that may adversely affect its safety for the consumer.

37. In order to facilitate product identification or recall, each bottled water product **MUST** contain a code that is designed to remain affixed to the container during use and which contains either the date of manufacture, or a lot or batch number.

38. A bottled water supplier who knows that the Standard of Analytical Compliance has been exceeded or has reason to believe that circumstances exist which may adversely affect the safety of bottled water, including but not limited to source contamination, spills, accidents, natural disasters, or breakdowns in treatment, **MUST** notify the Government authorities promptly.

39. Where it is determined, based upon representative samples, risk analysis, information provided by the bottled water supplier, and other information available that the circumstances present an imminent hazard to the public health and that a form of consumer notice or product

recall can effectively avoid or significantly minimise the threat to public health, the bottler **MUST** initiate a product recall.

40. It is a **REQUIREMENT** that where applicable, ABWI members do NOT operate a bottled water plant or bottle water for the purpose of sale or distribution without passing the ABWI Plant Inspection Program within 12 months of joining ABWI.

41. A bottled water plant **MUST** not be operated except under the supervision of a competent person qualified by experience, education, and training to operate and maintain the plant's facilities.

42. Said person **MUST** hold a certificate demonstrating that he or she has successfully completed the ABWI Certified Plant Operator course.

12.5 Plant Construction and Design

1. The grounds about a food plant under the control of the operator are **REQUIRED** to be kept in a condition that will protect against the contamination of food.

2. If the plant grounds are bordered by grounds not under the operator's control and not maintained in the manner described in paragraph (a) (i) through (iii) of this Section, care is **REQUIRED** to be exercised in the plant by inspection, extermination, or other means to exclude, dirt and filth that may be a source of food contamination.

3. Plant buildings and structures are **REQUIRED** to be suitable in size, construction and design to facilitate maintenance and sanitary operations for food-manufacturing purposes.

4. The plant and facilities are **REQUIRED** to be:

(i) Provide sufficient space for such placement of equipment and storage of materials as is necessary for the maintenance of sanitary operations and the production of safe food.

(ii) Permit the taking of proper precautions to reduce the potential for contamination of food, food-contact surface, or food-packaging materials with microorganisms, chemicals, filth or other extraneous material. The potential for contamination may be reduced by adequate food

safety controls and operating practices or effective design, including the separation of operations in which contamination is likely to occur, by one or more of the following means: location, time, partition, air flow, enclosed systems or other effective means.

(iii) Permit the taking of proper precautions to protect food in outdoor bulk storage vessels by any effective means, including:

a) Using protective coverings.

b) Controlling areas over and around the vessels to eliminate harborage for pests.

c) Checking on a regular basis for pests and pest infestation.

d) Be constructed in such a manner that floors, walls and ceilings may be adequately cleaned and kept clean and kept in good repair; that drip or condensate from fixtures, ducts and pipes does not contaminate food, food-contact surfaces, or food-packaging materials; and that aisles or working spaces are provided between equipment and walls and are adequately unobstructed and of adequate width to permit employees to perform their duties and to protect against contaminating food or food-contact surfaces with clothing or personal contact.

(iv) Provide adequate lighting in hand-washing areas, dressing and locker rooms and toilet rooms and in all areas where food is examined, processed or stored and where equipment or utensils are cleaned; and provide safety-type light bulbs, fixtures, sky-lights or other glass suspended over exposed food in any step of preparation or otherwise protect against food contamination in case of glass breakage.

(v) Provide adequate ventilation or control equipment to minimise odours and vapours (including steam and noxious fumes) in areas where they may contaminate food; and locate and operate fans and other air-blowing equipment in a manner that minimise the potential for contaminating food, food-packing materials, and food-contact surfaces.

(vi) Provide, where necessary, adequate screening or other protection again pests.

5. It is **REQUIRED** that buildings, fixtures and other physical facilities of the plant be maintained in a sanitary condition

6. It is **REQUIRED** that they be kept in repair sufficient to prevent food from becoming adulterated.

7. Cleaning and sanitizing of utensils and equipment **MUST** be conducted in a manner that protects against contamination of food, food-contact surfaces or food-packaging materials.

8. Pests **MUST** NOT be allowed in any area of a food plant.

9. Effective measures are **REQUIRED** to be taken to exclude pests from the processing areas and to protect against the contamination of food on the premises by pests.

10. It is **recommended** that the bottling room separated from other plant operations or storage areas by tight walls, ceilings and self-closing doors to protect against contamination.

11. It is **REQUIRED** that conveyor openings NOT exceed the size required to permit passage of containers.

12. If processing operations are conducted in other than a sealed system under pressure, adequate protection is **REQUIRED** to be provided to preclude contamination of the water and the system.

13. Adequate ventilation is **REQUIRED** to minimise condensation in processing rooms, bottling rooms and in container washing and sanitising areas.

14. It is **recommended** that the washing and sanitising of containers for bottled water be performed in an enclosed room.

15. It is **REQUIRED** that the washing and sanitising operations be positioned within the room so as to minimise any possible post-sanitising contamination of the containers before they enter the bottling room.

16. Rooms in which product water is handled, processed or held or in which containers, utensils or equipment are washed or held **MUST NOT** open directly into any room used for domestic household purposes.

17. It is **REQUIRED** that the product water supply for each plant be from an approved source properly located, protected and is **REQUIRED** to be easily accessible, adequate and of a safe, sanitary quality which **MUST** be in conformance at all times with the applicable laws and regulations of the government agency or agencies having jurisdiction.

18. If different from the product water supply, the operations water supply **MUST** be obtained from an approved source properly located, protected, and operated and **MUST** be easily accessible, adequate, and of a safe, sanitary quality which **MUST** be in conformance at all times with the applicable laws and regulations of the government agency or agencies having jurisdiction.

12.6 Plant Hygiene

1. Cleaning compounds and sanitizing agents used in cleaning and sanitizing procedures **MUST** be free from undesirable microorganisms

2. Cleaning compounds and sanitizing agents used in cleaning and sanitizing procedures **MUST** be safe and adequate under the conditions of use.

3. Toxic cleaning compounds, sanitizing agents, and pesticide chemicals **MUST** be identified, held and stored in a manner that protects against contamination of food, food-contact surfaces or food-packaging materials.

4. It is **recommended** that all relevant regulations promulgated by other Federal State, and local government agencies for the application, use or holding of these products be followed.

5. All food-contact surfaces including utensils and food-contact surfaces of equipment **MUST** be cleaned as frequently as necessary to protect against contamination of food.

6. When the surfaces are wet-cleaned, it is a **REQUIREMENT** that, when necessary, they be sanitized and thoroughly dried before subsequent use.

7. In wet processing, when cleaning is necessary to protect against the introduction of microorganisms into food, it is **REQUIRED** that all food-contact surfaces be cleaned and sanitized before use and after any interruption during which the food-contact surfaces may have become contaminated.

8. Where equipment and utensils are used in a continuous production operation, the utensils and food-contact surfaces of the equipment **MUST** be cleaned and sanitized as necessary.

9. It is **recommended** that non-food contact surfaces of equipment used in the operation of food plants be cleaned as frequently as necessary to protect against contamination of food.

10. It is **recommended** that single-service articles (such as utensils intended for one-time use, paper cups and paper towel(s) be stored in appropriate containers and it is **REQUIRED** that they be handled, dispensed, used and disposed of in a manner that protects against contamination of food or food-contact surfaces.

11. It is a **REQUIREMENT** that sanitising agents be adequate and safe under conditions of use.

12. Whenever air under pressure is directed at product water or a product water-contact surface, it is a **REQUIREMENT** that it be free of oil, dust, rust, excessive moisture and extraneous materials; it is **REQUIRED** that it **NOT** affect the bacteriological quality of the water and it is **recommended** that it **NOT** adversely affect the flavour, colour or odour of the water.

13. When employee locker and lunchrooms are provided, they are **REQUIRED** to be separate from plant operations and storage areas and it is a **REQUIREMENT** that they be equipped with self-closing doors.

14. It is a **REQUIREMENT** that the rooms be maintained in a clean and sanitary condition and it is **recommended** that refuse containers be provided.

15. It is a **REQUIREMENT** that packaging or wrapping material or other processing supplies **NOT** be stored in locker or lunchrooms.

16. The product water-contact surfaces of all multi-service containers, utensils, pipes and equipment used in the transportation, processing, handling and storage of product water **MUST** be clean and adequately sanitised.

17. All product water-contact surfaces **MUST** be inspected by plant personnel as often as necessary to maintain the sanitary condition of such surfaces and to assure they are kept free of scale, evidence of oxidation and other residue.

18. It is a **REQUIREMENT** that the presence of any unsanitary condition, scale, residue or oxidation be immediately remedied by adequate cleaning and sanitising of that product water-contact surface prior to use.

19. It is **REQUIRED** that after cleaning, all multi-service containers, utensils and disassembled piping and equipment be transported and stored in such a manner as to assure drainage it is **REQUIRED** that they be protected from contamination.

20. It is **REQUIRED** that single-service containers and caps are to be purchased and stored in sanitary closures and kept clean therein in a clean, dry place until used.

21. Prior to use they **ARE REQUIRED** to be examined and as necessary, washed, rinsed and sanitized and **MUST** be handled in a sanitary manner.

22. Filling, capping, closing, sealing and packaging of containers **MUST** be done in a sanitary manner so as to preclude contamination of the bottled water.

12.7 Plant Design

2. Site is **REQUIRED** to be compliant with Food Standards Code sections 3.2.2 and 3.2.3.

3.Each plant is **REQUIRED** to be equipped with adequate sanitary facilities and accommodations.

4. The water supply is **REQUIRED** to be sufficient for the operations intended and is **REQUIRED** to be derived from an adequate source.

5. Any water that contacts food or food-contact surfaces **MUST** be safe and of adequate sanitary quality.

6. It is a **REQUIREMENT** that running water at a suitable temperature, and under pressure as needed, is to be provided in all areas where needed for the processing of food, for the cleaning of equipment, utensils and food-packaging materials, or for employee sanitary facilities.

7. It is **REQUIRED** that plumbing be of adequate size and design and adequately installed and maintained to:

(i) Carry sufficient quantities of water to required locations throughout the plant.

(ii) Properly convey sewage and liquid disposable waste from the plant.

(iii) Avoid constituting a source of contamination to food, water supplies, equipment or utensils or creating an unsanitary condition.

(iv) Provide adequate floor drainage in all areas where floors are subject to flooding-type cleaning or where normal operations release or discharge water or other liquid waste on the floor.

(v) Provide that there is not backflow from, or cross-connection between, piping systems that discharge waste water or sewage and piping systems that carry water for food or food manufacturing.

8. Sewage disposal **MUST** be made into an adequate sewerage system or disposed of through other adequate means.

9. Each plant is **REQUIRED** to provide its employees with adequate, readily accessible toilet facilities.

10. Hand-washing facilities are **REQUIRED** to be adequate and convenient and be furnished with running water at a suitable temperature.

11. It is a **REQUIREMENT** that rubbish be so conveyed, stored and disposed of as to minimise the development of odour, minimise the potential for the waste becoming an attractant and harborage or breeding place for pests, and protect against contamination of food, food-contact surfaces, water supplies and ground surfaces.

12. It is **REQUIRED** that all plant equipment and utensils be suitable for their intended use.

13. All product water contact surfaces **MUST** be constructed of nontoxic and nonabsorbent material which can be adequately cleaned and sanitized.

14. Instruments and controls used for measuring, regulating or recording temperatures, pH, acidity, water activity, or other conditions that control or prevent the growth of undesirable microorganisms in food are **REQUIRED** to be accurate and adequately maintained, and adequate in number for their designated uses.

15. Storage tanks are **REQUIRED** to be of the type that can be closed to exclude all foreign matter,

16. Storage tanks are **REQUIRED** to be adequately vented.

17. It is **recommended** that HEPA filtration be installed but care is essential to ensure sufficient capacity of the filter to prevent tanks from being sucked in during discharge.

18. It is a **REQUIREMENT** that all treatment of product water by ozonation, distillation, ion-exchanging, filtration, ultra-violet treatment, reverse osmosis, carbonation, mineral addition, or any other process is done in a manner so as to be effective in accomplishing its intended purpose.

19. All such processes **MUST** be performed in and by equipment and with substances that will not adulterate the bottled product.

20. It is **REQUIRED** that a record of the type and date of physical inspections of such equipment, conditions found and the performance and effectiveness of such equipment be maintained by the plant.

21. Product water samples **MUST** be taken after processing and prior to bottling by the plant and analysed as often as is necessary to assure uniformity and effectiveness of the processes performed by the plant.

22. It is a **REQUIREMENT** that the methods of analysis be those approved by the government agency or agencies having jurisdiction.

23. Multi-service primary containers **MUST** be adequately cleaned, sanitized and inspected just prior to being filled, capped and sealed.

24. Containers found to be unsanitary or defective by the inspection **MUST** be reprocessed or discarded.

25. All multi-service primary containers **MUST** be washed, rinsed and sanitised by mechanical washers or by any other method giving adequate sanitary results.

26. Mechanical washers are **REQUIRED** to be inspected as often as is necessary to assure adequate performance.

27. It is **REQUIRED** that records of physical maintenance, inspections and conditions found, and performance of the mechanical washer be maintained by the plant.

28. Multi-service shipping cases **MUST** be maintained in such condition as to assure they will not contaminate the primary container or the product water.

29. Adequate dry or wet cleaning procedures are **REQUIRED** to be performed as often as necessary to maintain the cases in satisfactory condition.

30. It is **REQUIRED** that cleaning and sanitising solutions utilized by the plant be sampled and tested by the plant as often as is necessary to assure adequate performance in the cleaning and sanitizing operations.

31. It is **REQUIRED** that records of these tests be maintained by the plant.

32. During the process of filling, capping or sealing either single-service or multi-service containers, it is a **REQUIREMENT** that the performance of the filler, capper or sealer be monitored and the filled containers visually or electronically inspected to assure they are sound, properly capped or sealed, and coded and labeled.

33. Containers that are not satisfactory **MUST** be reprocessed or rejected.

34. Bottlers **MUST** only use nontoxic containers and closures.

35. All containers and closures **MUST** be inspected to ascertain that they are free from contamination.

36. At least once each 3 months, it is **recommended** that a bacteriological swab and/or rinse count be made from at least four containers and closures selected just prior to filling and sealing.

37. All samples **MUST** be free of coliform organisms.

38. The procedure and apparatus for these bacteriological tests are **REQUIRED** to be in conformance with those recognized by the government agency or agencies having jurisdiction.

39. It is a **REQUIREMENT** that tests be performed either by trained plant personnel or by a laboratory using approved methodologies.

40. It is a **REQUIREMENT** that all operations in the receiving, inspecting, transporting, segregating, preparing, manufacturing, packaging and storing of food be conducted in accordance with adequate sanitation principles.

41. It is a **REQUIREMENT** that overall sanitation of the plant be under the supervision of one or more competent individuals assigned responsibility for this function.

42. It is a **REQUIREMENT** that all reasonable precautions be taken to ensure that production procedures do not contribute contamination from any source.

43. It is a **REQUIREMENT** that chemical, microbial, or extraneous-material testing procedures be used where necessary to identify sanitation failures or possible food contamination.

44. All food that has become contaminated to the extent that it is adulterated **MUST** be rejected, or if permissible, treated or processed to eliminate the contamination.

45. It is a **REQUIREMENT** that raw materials and other ingredients be inspected and segregated or otherwise handled as necessary to ascertain that they are clean and suitable for processing into food and it is a **REQUIREMENT** that they be stored under conditions that will protect against contamination and minimize deterioration.

46. It is a **REQUIREMENT** that raw materials be washed or cleaned as necessary to remove soil or other contamination.

47. Water used for washing, rinsing, or conveying food is **REQUIRED** to be of a safe and of adequate sanitary quality.

48. Containers and carriers of raw materials **should** be inspected on receipt to ensure that their condition has not contributed to the contamination or deterioration of food.

49. It is a **REQUIREMENT** that raw materials and other ingredients either not contain levels of microorganisms that may produce food poisoning or other disease in humans OR it is **REQUIRED** that they be adequately treated during manufacturing operations, by washing, sanitising and rinsing according to the instructions of the manufacturers of the chemicals used, so that they no longer contain levels that would cause the product to be adulterated.

50. Raw materials, other ingredients, and rework susceptible to contamination with pests, undesirable microorganisms, or extraneous material **MUST** comply with applicable FSANZ Food Code Regulations, guidelines and defect action levels for natural or unavoidable defects if a manufacturer wishes to use the materials in manufacturing food.

51. It is a **REQUIREMENT** that raw materials, other ingredients, and rework be held in bulk, or in containers designed and constructed so as to protect against contamination and it is a

REQUIREMENT that they be held at such temperature and relative humidity and in such a manner as to prevent the food from becoming adulterated

52. Material scheduled for rework **MUST** be identified as such.

53. Measures such as sterilizing, irradiating, pasteurising, freezing, refrigerating, controlling pH or controlling A_w that are taken to destroy or prevent the growth of undesirable microorganisms, particularly those of public health significance, **MUST** be adequate under the conditions of manufacture, handling, and distribution to prevent food from being adulterated.

54. Work-in-process **MUST** be handled in a manner that protects against contamination.

55. It is a **REQUIREMENT** that effective measures be taken to protect finished food from contamination by raw materials, other ingredients, or refuse.

56. When raw materials, other ingredients, or refuse are unprotected, they **MUST NOT** be handled simultaneously in a receiving, loading or shipping area if that handling could result in contamination.

57. It is a **REQUIREMENT** that food transported by conveyor be protected against contamination as necessary.

58. It is a **REQUIREMENT** that equipment, containers and utensils used to convey, hold or store raw materials, work-in-process, rework or food be constructed, handled and maintained during manufacturing or storage in a manner that protects against contamination.

59. It is a **REQUIREMENT** that effective measures be taken to protect against the inclusion of metal or other extraneous material in food.

60. Food, raw materials, and other ingredients that are adulterated are **REQUIRED** to be disposed of in a manner that protects against the contamination of other food.

61. If the adulterated food is capable of being reconditioned, it is a **REQUIRED** to be reconditioned using a method that has been proven to be effective OR it is a **REQUIREMENT**

that it be re-examined and found not to be adulterated before being incorporated into other food.

62. It is a **REQUIREMENT** that mechanical manufacturing steps such as washing and filling be performed so as to protect food against contamination.

63. Filling, assembling, packaging and other operations **MUST** be performed in such a way that the food is protected against contamination.

64. It is a **REQUIREMENT** that storage and transportation of finished food be under conditions that will protect food against physical, chemical and microbial contamination as well as against deterioration of the food and the container.

12.8 Cooler Cleaning

Bottled water manufacturers who clean and/or refurbish coolers for re-sale or re-hire **MUST** have a cleaning and sanitising procedure in place.

It is **REQUIRED** that this procedure includes the following:-

a) isolate returned coolers from new or sanitised coolers

b) clean and sanitise away from process areas where there can be no contamination of raw materials, process lines or finished product

c) check, clean and sanitise the coolers

d) repair as required

e) when completed the coolers will be bagged or boxed in a manner that will minimise the risk of recontamination

f) store in an appropriate manner

12.9 Record Keeping

It is a **REQUIREMENT** that all records be retained at the plant for not less than 7 years.

12.10 Laboratory Maintenance

In-house laboratories are **REQUIRED** to be maintained in a clean and appropriate manner for the activities to be conducted without causing contamination by handling or an unsuitable environment.

Laboratory maintenance **REQUIRED** includes:-

1. The construction, space, lighting and ventilation to be designed to conduct the required activities.

2. All laboratory equipment is adequately sanitised and maintained in proper working order.

3. Appropriate sanitisation of the laboratory will be maintained.

4. Quality control monitoring will be conducted to ensure the reliability and efficacy of tests, test results and laboratory personnel.

5. Access will be restricted to authorised personnel.

6. Staff may only enter wearing clean outer clothing.

7. Rubbish will be kept covered and removed daily.

8. Procedures are documented and document control established for all laboratory operations and records.

All contaminated materials are **REQUIRED** to be sterilised prior to disposal.

12.11 Labeling Requirements

1. Bottled water product labeling **MUST** comply with all applicable provisions under FSANZ Food Standards Code and Appendices. The Joint Australia New Zealand Food Standards Code (FSC) is administered by FSANZ and sets down mandatory labelling requirements.

2. Bottled water product labelling **MUST** comply with the provisions of the FSANZ Code of Practice on Nutrient Claims in Food Labels and in Advertisements.

3. Bottled Water product labelling **MUST** also be in accordance with the Australian Consumer Law.

4. Bottled water product labelling **MUST** also comply with applicable provisions set out in National Trade Measures Regulations 2009 administered by the National Measurement Institute (NMI).

5. Bottled water product labelling **MUST** also comply with applicable provisions set out in the Australian National Standard for Organic & Biodynamic Products (DR08147).

6. Bottled water product labeling, where manufactured outside of Australia and New Zealand **MUST** comply with local legislative provisions in addition to requirements in Australia and New Zealand. Where water is neither bottled nor sold in Australia and/or New Zealand, the requirements of equivalent local regulation applies.

END