



28 March 2022

Drinking Water Standards, Quality Assurance Rules, Aesthetic Values & Acceptable Solutions
Taumata Arowai

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Dear Sir/Madam,

**SUBMISSION FOR WATER NEW ZEALAND ON THE PROPOSED DRINKING WATER
STANDARDS, QUALITY ASSURANCE RULES, AESTHETIC VALUES AND ACCEPTABLE
SOLUTIONS**

INTRODUCTION AND OVERVIEW

1. Water New Zealand ("Water NZ") appreciates the opportunity to provide a submission on Taumata Arowai's Drinking Water Consultation. This submission addresses related consultation pieces on:
 - Drinking Water Standards
 - Drinking Water Quality Assurance Rules
 - Drinking Water Aesthetic Values
 - Drinking Water Acceptable Solution for Roof Water Supplies
 - Drinking Water Acceptable Solution for Spring and Bore Water Supplies
 - Drinking Water Acceptable Solution for Rural Agricultural Water Supplies
2. Water NZ is a national not-for-profit organisation which promotes the sustainable management and development of New Zealand's three waters (drinking water, wastewater and stormwater).
3. Water NZ is the country's largest water industry body, providing leadership and support in the water sector through advocacy, collaboration and professional development. Its 2,600 members are drawn from all areas of the water management industry including regional councils and territorial authorities, consultants, suppliers, government agencies, academia and scientists.
4. Many members will be making their own submissions, these submissions are intended to complement those of its members. Our submission has been prepared by Technical Staff Noel Roberts and Lesley Smith. Questions responded to draw on their experience and reflect views shared with us by our membership. We have also drawn on our engagement with small water suppliers to reflect their views in our submission. While these do not fit neatly within the questions proposed, our engagement to date suggests there is a strong need for deeper engagement with small water suppliers.
5. All consumers of drinking water deserve access to safe water. We are supportive of Taumata Arowai and recognise that these documents play an important role in facilitating this.

6. We congratulate Taumata Arowai for the Drinking Water Quality Assurance Rules, which are significantly easier to interpret than the Drinking-water Standards for New Zealand. We believe the structure and content of the documents is such that municipal water suppliers should be able to easily understand their compliance requirements.
7. Much discussed funding and capability constraints have prevented a number of municipal suppliers from complying with standards in the past. While many of these constraints persist, we do not believe it is unrealistic for these supplies to achieve compliance in the future. Indeed, it is essential for the health and wellbeing of their customers that they do.

GENERAL COMMENTS ON SMALL WATER SUPPLIES

8. We are less confident in the ability of very small and small water suppliers to understand and comply with the Drinking Water Quality Assurance Rules and Acceptable Solutions. Their concerns do not fit neatly within the questions posed by the consultation, nor are solutions immediately obvious. However, we believe it is important the very real concerns held by many small suppliers are acknowledged, and collaborative solutions sought. Without pragmatic attempts to address the challenges faced by small water suppliers, we will not be able to achieve safe drinking water for all New Zealanders.
9. A Water New Zealand contractor spent part of the summer contacting 468 small water suppliers to encourage them to register their water supplies. For many spoken too, this was their first opportunity to engage in a meaningful dialogue about the coming changes to their supply. Most suppliers contacted were reached via phone, likely reflecting that small water suppliers do not have desk-based occupations. Online approaches will be insufficient to engage with many of these suppliers.
10. While some of the small water suppliers spoken to were supportive of regulation of their supplies, this was a minority group (estimated as around 5% of those spoken too). There was also a minority who were strongly opposed to engaging in on a conversation on their supplies, who either hung up, or refused to supply detail of their supply. Again, this was a minority, estimated as around 5% of those contacted.
11. The majority of those spoken too were generally supportive of steps to ensure drinking water safe but had reservations related to how they would be impacted. Common threads from these conversations are listed here:
 - Most had a low awareness of Taumata Arowai's role in the wider three waters reform programme. Many were unaware Taumata Arowai had already been established and that the Water Services Act 2021 had passed through parliament, conflating drinking water regulations with the proposed three waters entity reform being led by the Department of Internal Affairs.
 - Many were uncertain and nervous about what their future regulatory requirements would be. Several asked who they should speak to get support to understand their obligations.
 - Many did not see there was a problem with existing arrangement and couldn't understand the case for change. It was common for small water suppliers to query what the reforms were intended to achieve.
 - Many raised concerns about their ability to meet the time and financial impost of complying with new regulations.
 - Some raised logistical concerns around the workability of achieving compliance for their water supply. For example, provision of power to remote sites. A water supplier at a camp on Great Barrier Island talked about the time delays and costs associated with shipping water supply samples to mainland laboratories.

- Some expressed concern that registering their supply on Hinekōrako would lead them to having to comply with more regulations down the line.
- A smaller group thought that registering their supply on Hinekōrako may be a first step towards having their supply co-opted into four entities.
- There was a higher-than-average degree of reticence amongst the few Māori trusts spoken too. More than once they expressed a view that they were rightful stewards of their own water, and government intervention was unwelcome.
- Some of the larger suppliers expressed concern that they would need to chlorinate supplies. Some were reluctant to do this based on consumer preferences, and nervousness about chemical handling. Conversely, many were already chlorinating their supplies.

12. In addition to these conversations, four small water suppliers made written contact with Water New Zealand. We have shared some of the salient comments that we believe broadly reflect the views of many small water supplies. Some of these suppliers have also provided their own submissions directly to Taumata Arowai.

Cooperative water scheme, 200 people

“I am not sure where to start.”

“What are we meant to do now?”

“Our customer do not want their water chlorinated? Are we being forced to chlorinate?”

“How do I get help and what is the time frame?”

Joint title holder on an artesian well, serving three households, with three more expected in the future

“Running costs are paid for by the users in proportion to their usage which is metered. We are all owners and therefore “suppliers” and none of us accept any legal liability for either quality or quantity of the supply.”

“If we choose to drink untreated water why is that not our right . . . I do not believe the government should be regulating in this space. Will it soon be illegal to drink from a mountain stream?”

“Given our private shared supply has a test history over three decades showing no detectable ecoli, extremely low levels of any contaminants and extremely low suspended particulates, the filters and lamps required by these regulations will be doing nothing but will be required to be serviced and replaced at regular intervals. The only groups to benefit from these requirements are the suppliers, installers and maintainers of treatment systems and the laboratories testing the water samples – and the shareholders in such companies.”

“Where a private supply (not administered by a public body) can show very low or no levels of contamination the testing intervals should be extended to reduce cost and lab workloads. The Water Regulator should be advising and recommending – not demanding, as the government has no moral authority in this space.”

“Why do those of us who are registered with the MoH have to comply by 1st July 2022 whilst those who are not currently registered have another seven years before they have to comply? That is simply not acceptable, it is not fair or equitable.”

Coastal community committee, 53 privately owned holiday homes, with no permanent residences.

“We strongly support the use of end point treatment as an acceptable solution . . . In water supplies like ours, it’s not cost effective or practical to have a 24/7 Centralised Treatment supply when for many, many days of the year, nobody is in residence.”

“The [coastal] Water Supply is looked after by volunteers, without which, the Scheme wouldn’t operate. Nobody is qualified, so because of our location, monthly compliance tests . . . would be impractical and cost prohibitive to comply with.”

Incorporated society, a trickle feed bore drinking water supply, supplying 23 lifestyle properties (60-70 population)

“A committee of five volunteers is elected from within the membership on an annual basis. Turnover of committee members can be high, presenting challenges with training.”

“The proposed requirements appear to indicate a general lack of understanding about how small suppliers in rural and semi-rural areas operate, and about their capacity and capability to comply with the proposed regulations. Taumata Arowai has stated that there could be up to 75,000 unregistered suppliers across the country. It is reasonable to assume that most of these will be small or very small untreated supplies in rural areas and most will struggle to comply. Many, if not most, of these supplies will be run by volunteers with no technical knowledge about water engineering or science.”

“Acceptable Solutions have been developed with the intention of making compliance easier for such small suppliers. While they may be simpler than developing a full water safety plan, they are still an enormous step up for these small suppliers and likely unachievable for some. The prospect of having to install, operate, maintain and monitor water treatment plants and the associated systems is daunting for volunteers . . . The monitoring activities, in particular are onerous, requiring daily testing in many cases.”

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13. These comments reflect that there is a need for deeper engagement with small water suppliers; to understand the case for change, raise awareness of how regulation will impact their supplies, and work through some of the logistical challenges that occur in remote regions.
 14. Our contractor indicated to most of the suppliers he spoke to that face-to-face regional meetings would be occurring. While face to face meetings have not happened as part of this consultation (for understandable reasons) we still feel there is a strong need for such meetings going forward. These could be focused in areas with a high concentration of small supplies, such as Central Otago, and the East Coast. There is a pressing need for Taumata Arowai to better understand the perspective of the suppliers, as well as for suppliers to understand the perspectives of Taumata Arowai.

DRINKING WATER STANDARDS

Question 19. Do you agree that the process used to review the MAVs for drinking water standards was appropriate?

15. Yes. The World Health Organisations are underpinned by robust science. ESR are a credible local scientific body to be ensuring the MAVs for a local context. We are also supportive of the adoption of values from the Australian Drinking Water Guidelines for PFHxS, PFOS and PFOA.

Question 20. Do you agree that the proposed MAVs will support the objective of ensuring that drinking water suppliers provide safe drinking water to consumers?

16. Yes. Some small suppliers have commented to us that it had previously been unclear to them what limits were allowable. The proposed MAV's make it very clear what is required to provide safe drinking water.

DRINKING WATER QUALITY ASSURANCE RULES

Question 19. Do you agree that the proposed Drinking Water Quality Assurance Rules support the objective of ensuring that drinking water suppliers provide safe drinking water to consumers?

17. Yes. However, we have concerns about the ability of very small and small suppliers to comply with the rules, as outlined in our introduction.

Question 20. Do you agree that these categories are appropriate?

18. Questions around the capability of volunteer run schemes to comply with requirements should be given further consideration in determining the population thresholds for very small and small suppliers.
19. Some within our membership have suggested trickle feed supplies should have the same rules apply as rural agricultural supplies. There are mixed views within our membership on this issue, with some favouring more widespread allowance of point of use treatment devices and others who think this should never be provided as an option.

Question 20. Do you agree with the proposed General Rules?

20. Rules G9 and G10 require continuous monitoring to occur at 1 minute, with interruptions of no more than 15 minutes. While this interval may be appropriate for SCADA systems with corporate historian/information storage onsite, we see this time interval as problematic for remote sites. Where there are multiple remote sites, communicating to a single central SCADA hub the one minute timeframe is likely to lead to bandwidth and latency issues. We suggest extending the continuous monitoring interval for remote sites to 15 minutes.

Question 39. Do you agree with the proposed Source Water Rules for the S1 module?

21. Cyanotoxin pose a significant risk to water supplies, and we support their strengthened management (and in modules S2 and S3). It would be useful to provide guidance as to the type of complaints that may relate to cyanotoxins in S1.3.

Question 45. Do you agree with the proposed Treatment Rules for the T2 module?

22. We acknowledge that many small suppliers have expressed concern about the requirement to chlorinate their supplies. We acknowledge the important public health benefits, the right for these suppliers to remain sovereign over their decisions, and concerns raised by some about the safety of chemical handling. We believe this is an area requiring more engagement with small suppliers.
23. We support the requirement to monitor chlorate where sodium hypochlorite is used as a disinfectant, reflecting that without management processes chlorate has been known to build up over time to limits exceeding the MAV (Water Supply Risk Assessment - Preliminary survey of chlorate concentrations in drinking-water, Ashworth, Cressey, & Pattis, 2018).
24. Rule T2.13 could be amended to require that if sodium hypochlorite is purchased, steps are taken to minimise chlorate formation. Stanford et al (Stanford BD, P. A. *Perchlorate, bromate and chlorate in hypochlorite solutions: Guidelines for utilities*. Journal American Water Works Association, 103(6): 1-13) have identified steps for minimising chlorate concentrations in chlorinating solutions. Some of which may be appropriate to adopt within rule T2.13:
- Dilute stored hypochlorite solutions on delivery;
 - Store hypochlorite solutions at lower temperature;
 - Maintain the pH of the stored hypochlorite solution in the range pH 11–13, after dilution
 - Use hypochlorite solutions generated on-site (and calcium hypochlorite solutions) as soon as possible after preparation;
 - Use filtered hypochlorite solutions (to remove metals) if purchasing hypochlorite solutions, or low-metal feed waters if generating the hypochlorite on-site (this also applies to the feed waters manufacturers use);
 - Avoid extended storage times and use fresh hypochlorite solutions where possible be used within a relatively short time frame after delivery (within 3 months); and
 - Be stored in a cool dry location where the temperature does not exceed 30°C, away from sunlight.

Question 20. Do you agree with the proposed Distribution System Rules for the D2 module?

25. Daily FAC and pH sampling is unlikely to be practicable for certain volunteer run schemes. This would necessitate online monitoring (expensive) or, daily manual visits (onerous).

Question 45. Do you agree with the proposed Source Water Rules for the S3 module?

26. We support the classification into different treatment classes based on source water risk levels. We hope that this will create a driver that could lend weight to initiatives which improve the health of source water catchments.
27. The sanitary bore head requirements outlined in 10.8.2 should be aligned with any requirements introduced to the National Environmental Standards for Sources of Human Drinking Water. Submissions on proposed amendments to the NES for S-DW closed earlier this month.
28. More comprehensive guidance on sanitary bore head and testing would be useful to complement the requirements of section 10.8.2.
29. Point 2 requires the bore to be installed in area that is not below the surrounding ground level. Replacing 'surrounding ground level' with 0.5m above the flood level for a 1 in 100-year flood event (or flood with 1% Annual exceedance probability) would protect bore water supplies from contamination during flooding.
30. We query whether undertaking radiological testing every five years is too frequent, given the extreme unlikelihood of this occurring and the limited options for lab testing.

Question 46. Do you agree with the proposed Treatment Rules for the T3 module?

31. We support the approach outlined in 10.9.3 to ensuring that chemicals introduced during the treatment process do not introduce health significant contamination into water supplies. These requirements gazump the requirements of a Water New Zealand Good Practice Guideline series, on the Supply of Drinking Water chemicals Chlorine, Polyelectrolytes, Aluminium sulphate and Hydrated Lime in Drinking Water Supplies. We suggest these guidelines are jointly reviewed by Taumata Arowai and Water New Zealand to ensure that any conflicting requirements are removed, and that supporting advice is retained.
32. Rule T3.95 instead of **neither** should say **either**.

Question 47. Do you agree with the proposed Distribution System Rules for the D3 module?

34. We applaud the strengthened backflow requirements, outlined in D3.1 to D3.5.

Question 51. Do you have any comments on the transition time required to adopt the proposed rules?

35. We strongly support a staged approach for unregistered small water suppliers with sufficient lead-in time to ensure they understand the requirements and for the supporting service industry to grow their capability.
36. As highlighted in the comments made by small suppliers, those who have already registered with the Ministry of Health feel unfairly disadvantaged by these timelines for being proactive in their registrations.

DRINKING WATER AESTHETIC VALUES

Question 46. Do you agree with the proposed Treatment Rules for the T3 module?

37. Yes. The World Health Organisation values on which many of the aesthetic determinants are based is underpinned by robust science.
38. It would be useful to provide information on if/when parameters in the aesthetic values become toxic. This could be provided through a link to the World Health Organisation information or provided as a separate resource.

DRINKING WATER ACCEPTABLE SOLUTION FOR RURAL AGRICULTURAL WATER SUPPLIES

Question 19. Do you believe that the proposed Drinking Water Acceptable Solution for Rural Agricultural Water Supplies will provide assistance to water suppliers to comply with the Water Services Act 2021?

39. Water New Zealand believes the proposed acceptable solution is written in language that is technical and lacks sufficient explanatory detail that many Rural Agriculture Water Supplies will need to comply with the Water Services Act.
40. Rural Agriculture Water Supplies could be further supported to comply with the solution through:
 - Supporting guidelines written for a non-technical audience. Facilitating understanding through inclusion of supporting examples, step by step instructions and expanded definitions.
 - Plumbing diagrams where appropriate.
 - A product register providing information on the types of equipment needed, and where they can be sourced.
 - A register of consultants and suppliers or contractors who can support the implementation of the solution.
 - Checklists and templates for required training records, audit, monitoring, operating and maintenance requirements.
 - Training material.
41. Water New Zealand's Water Directory www.waterdirectory.org.nz will likely be a useful resource, as consultants, suppliers and contractors advertise their capability/products to support the installation and operation of acceptable solutions.
42. Water New Zealand has also produced a draft Competency Framework for Small Suppliers (see [link](#)) aimed at providing support so that those responsible for a small water supplier know what they need to be able to do, and need to know to protect the health of the public.
43. The acceptable solution should reference other requirements that will apply to the water supply, stipulated through other pieces of legislation. Additional compliance requirements imposed by these pieces of legislation should be acknowledged within the acceptable solution. This will help avoid any tensions that occur through various acts and reduce the burden on water suppliers interpreting various legislative requirements. Other relevant legislation includes:

- The Resource Management Act (RMA) which covers taking water and discharging wastes to the environment.
- The Building Act, under which the building code compliance for water supplies includes backflow requirements for water connections.
- The Health and Safety at Work Act (HSWA) which covers health and safety requirements, along with the Health and Safety at Work (Hazardous Substances) Regulations.
- The Construction Contracts Act (CCA) covers the contractual relationships you have when building new water infrastructure.
- The Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 and any other relevant legislation which apply to water permits that allow fresh water to be taken at a rate of 5 litres/second or more.

Question 20: Do you agree with the criteria proposed for the adoption of the Drinking Water Acceptable Solution?

44. Interpretation of the criteria could be simplified to facilitate understanding. For example, using a flow chart or other visual aid.
45. Drinking water use criteria requires that up to 35 percent of the water from the supply may be used for domestic purposes (and therefore goes through a compliant treatment system). At least 65 percent of the water must be used for stock water, wash down, irrigation or other non-domestic uses. It is unlikely that in many instances such a breakdown will be provided. A more practicable approach may be to specify that the dominant water use is for non-potable uses, such as stock water, wash down and irrigation.

Question 22: Do you agree that the proposed turbidity and backflow prevention device requirements are appropriate?

46. We support the use of air gaps as a form of backflow prevention. Air gaps are a cost-effective maintenance and test free solution, making them a preferred backflow prevention method. We recommend that a properly created air gap is also an approved backflow protection device and is a viable solution for many of the proposed Acceptable Solutions. The Water New Zealand and Master Plumbers New Zealand Backflow Testing Standard 2019, New Zealand Backflow Testing, provides supporting references for the calculation and verification of air gaps.

Question 24: Do you agree that the proposed end point treatment system configuration is appropriate?

47. The diagram shows both a backflow prevention device and an airgap on the storage tank. If an adequate air gap is incorporated on the storage tank a backflow device will not be required. This should be made clearer in the diagram.

48. Balance and header tanks are not always required after disinfection. There should be an additional configuration shown with the UV disinfection unit feeding directly into the house.

Question 32: Do you agree that the training and awareness obligations of the water supplier are appropriate?

49. The training requirements specify that competencies associated with training member must be validated for each staff member every three years. In many instances small suppliers are likely to be run by volunteer organisations not employing staff. Minimum competency requirements will also be needed for volunteers to operate a safe supply, so we suggest changing wording to refer to the person responsible.
50. Taumata Arowai should ensure that Training is available to support water suppliers to obtain the required competencies. Water New Zealand is currently developing training material for small water suppliers and associated technical solutions will assist in facilitating this.

DRINKING WATER ACCEPTABLE SOLUTION FOR SPRING AND BORE DRINKING WATER SUPPLIES

Question 19. Do you believe that the proposed Drinking Water Acceptable Solution for Spring and Bore Water Supplies will provide assistance to water suppliers to comply with the Water Services Act 2021?

51. Water New Zealand believes the proposed Acceptable Solution is written in language that is technical and lacks sufficient explanatory detail that many Spring and Bore Water Supplies will need to comply with the Water Service Act. See our response to the question on Drinking Water Acceptable Solution for Rural Agricultural Water Supplies for suggestions on additional support that could be put in place to support compliance.
52. As with Agricultural Supplies, the Acceptable Solution should reference other requirements that will apply to the water supply. See our response to the question on Drinking Water Acceptable Solution for Rural Agricultural Water Supplies for a list of other relevant legislation, and our response to question 22.

Question 20. This proposed Acceptable Solution for Spring and Bore Drinking Water Supplies has been prepared based on a centralised treatment solution. Do you think the proposed Acceptable Solution would be more effective if it was based on an end-point treatment system rather than a central treatment plant?

53. The Acceptable Solution should allow for either centralised or end-point treatment. Providing this flexibility gives water supplies the opportunity to develop a solution that meets their own unique circumstances. For example, supplies to holiday homes where there is not a usually resident population end-point treatment devices are more likely to be an appropriate form of treatment.

Question 22. Do you agree that the proposed requirements before the Acceptable Solution can be adopted by a supplier are appropriate?

54. The requirements laid out in 6.2 should be harmonised with requirements in the National Environmental Standards for Sources of Human Drinking Water (note, submissions on proposed changes to the NES closed earlier this month). The set-back requirements for Source Water Risk Zone 1 should be consistent with the fencing requirements for farm annual exclusion. Any requirements for bore casings adopted into the NES should also be reflected in the Acceptable Solution.

Question 30. Do you agree that the training and awareness obligations of the water supplier are appropriate?

55. See response to the training and awareness question for Rural Agricultural Supplies.

DRINKING WATER ACCEPTABLE SOLUTION FOR SPRING AND BORE DRINKING WATER SUPPLIES

Question 30. If you want to provide any additional feedback on the proposed Drinking Water Acceptable Solution for Roof Water Supplies, please provide this feedback here:

56. Questions 18 through 29 appear to be missing on the consultation page. Accordingly, all our responses to the Acceptable Solution for spring and bore drinking water supplies are collated in this question.
57. Our response for Acceptable Solutions for Rural Agricultural Water Supplies and Spring and Bore Water Supplies are the same in relation to:
- a. The need to provide additional support to aid interpretation.
 - b. The need to list any other requirements from related Acts.
 - c. The need to have competency requirements specified and associated training available.
58. Balance and header tanks are not always required after disinfection. There should be an additional configuration shown with the UV disinfection unit feeding directly into the house.

CLOSING COMMENTS

59. We look forward to continuing to support Taumata Arowai as the Water Services Act is implemented to ensure the desired step change in quality of drinking water services received by all New Zealanders is achieved.
60. We welcome the opportunity to discuss any aspects of this submission with Taumata Arowai. This consultation is an important first step in launching Aotearoa's new regulatory drinking

water regime, however there is much mahi to be done. If you have any specific questions in relation to this submission, please contact Lesley Smith (Lesley.smith@waternz.org.nz) or Noel Roberts (noel.roberts@waternz.org.nz).

Ngā mihi nui,

A handwritten signature in black ink, appearing to read "Gillian Blythe". The signature is fluid and cursive, with the first name "Gillian" and last name "Blythe" clearly distinguishable.

Gillian Blythe
Chief Executive
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