

Exemption Decision Paper

Exemption Number	EXE-00001000
Exemption Type	Residual disinfection exemption
Supply Name	Rakaia Huts
Supply ID	RAK003
Date	26 April 2023 / te 26 o Paengawhāwhā 2023
Applicant	Selwyn District Council
Exemption Team	Jim Graham, Principal Advisor, Drinking Water Peter Wood, Regulatory Delivery Team Leader Daniel Pickup, Senior Regulatory Delivery Advisor
International panel member	Dr Dan Deere

Recommendation

For the reasons set out in this paper, the Exemption Team recommends that you **decline** the residual disinfection exemption application for the Rakaia Huts drinking water supply.

See the 'Additional comments' section of this paper for a discussion of matters that, if satisfactorily addressed and accompanied by appropriate conditions, might enable the Exemption Team to recommend the granting of a residual disinfection exemption for the supply. This paper includes references and information from Selwyn District Council's response to the draft decision.

Executive summary

1. On 9 September 2022, Selwyn District Council (**SDC**) applied for a residual disinfection exemption in relation to the Rakaia Huts drinking water supply (supply ID RAK003). The application was made under s 58 of the Water Services Act 2021 (**WSA**). The Exemption Team notes that much of the information provided by SDC for the residual disinfection exemption was generic across the entire Selwyn District rather than specific to the Rakaia Huts community.
2. The Exemption Team considers that the supply cannot currently be operated without residual disinfection in a way that is consistent with the main purpose of the WSA: i.e. to ensure that drinking water suppliers provide safe drinking water to consumers.
3. The two key factors that underpin the Exemption Team's view are:
 - (a) The supply uses groundwater that may be at risk from human pathogenic enteric viruses. There is not currently any effective barrier to enteric viruses, or any evidence that source water extracted for supply will not (or will be highly unlikely to) contain any human pathogenic enteric viruses. The supply's source water risk management plan

(SWRMP) does not adequately consider human pathogenic virus risk. This is further examined in paragraphs 46-51 of this decision.

- (b) Water loss reported by SDC in the supply's distribution system is not well enough understood to provide confidence that the supply can safely operate without residual disinfection. Water loss is a particularly significant factor, as the supply's distribution system is located within a community that is served by on-site domestic wastewater systems where it is reasonable to expect that groundwater will be affected by wastewater containing human pathogenic viruses, bacteria, and protozoa. High unintended water loss is also relevant to the concept of Te Mana o te Wai. This is further examined in paragraphs 62-63 of this decision.

4. Other factors that could possibly have been managed with conditions if the exemption was granted are:

- (a) The proposed frequency of checking for storage tank vulnerabilities (quarterly checks proposed) is inadequate for chlorine-free tanks with unlocked hatches. This is further examined in paragraph 57 of this decision.
- (b) Management options for risks arising from unlocked storage tank hatches need to be further developed.
- (c) Identified pipe renewal work that has not yet been carried out.
- (d) The drinking water safety plan (DWSP) or supporting documents does not include a 'repair and replace under pressure' plan or process for the supply.
- (e) Transgression response plans and emergency response plans do not identify the threshold for chlorination with sufficient clarity, with particular regard to the identification of total coliforms or certain incidents such as mains breaks, loss of pressure in the distribution system, temperature changes, or source water changes.
- (f) There is evidence of bird roosting and defecation above the supply's storage tanks, with faecal matter landing on the tanks.
- (g) There is no clear community communication plan to inform consumers that chlorine may need to be dosed at any time, and at SDC's discretion, as a back up to the filter or UV systems or where there is a need for a residual disinfectant in the supply's distribution system: e.g. during repair and maintenance work, or in response to water quality test results or other incidents. SDC has reported that a txt and email notification system is in place, but it is not clear that this is part of a specific communications plan relevant to the Rakaia Huts supply.
- (h) The DWSP does not provide for heterotrophic plate counts to be carried out at appropriate locations within the supply. These should be provided for as part of regular monitoring and in response to total coliform or *E.coli* detection or other incidents where a supply operates without residual disinfectant.

5. A number of other drinking water safety risks that were observed, but not considered material to SDC's exemption application, are noted in the 'Additional comments' section of this paper.

Supply information

6. The Rakaia Huts drinking water supply serves a registered population of 320 people, living in a coastal community. The main characteristics of the supply are briefly described below. More detail about certain components is set out elsewhere in this paper, where it is relevant.
7. The source water is drawn from a 23m deep bore which is screened from 21 – 23m below ground level.
8. The treatment plant is on the same site as the bore.
9. Raw water is treated by a cartridge filtration and ultra violet (**UV**) disinfection.
10. Chlorination equipment was installed but was not in service at the time of the Exemption Team's site visit.
11. The DWSP records that:

... permanent standby chlorination infrastructure is installed and is fully commissioned to be used during an emergency or transgression event or while SDC seek a chlorine exemption.
12. The distribution system is straightforward and is almost exclusively residential with one commercial campground connected to the supply.
13. The DWSP records that the source water protection barrier is 'partially effective', the bore is otherwise appropriately designed.
14. The cartridge filtration system provides a physical barrier to contamination.
15. The UV disinfection is set at a level consistent with the inactivation of bacteria and protozoa.
16. Water is protected in the distribution system by maintaining pressure, with water meters and backflow prevention devices on every connection.
17. The Exemption Team reviewed the Annual Reports on Drinking-water Quality published by the Ministry of Health in order to examine the compliance history of the Rakaia Huts supply. Reports dating back to the 2016/17 year were considered, with no compliance concerns identified by drinking water assessors. The DWSP does record instances where total coliforms were detected, but that was not a compliance issue under the regime administered by the Ministry of Health. Taumata Arowai has also not received any notifications of non-compliance or potentially unsafe drinking water in relation to the supply since it became the regulator in mid-November 2021.

Information provided by the applicant

18. SDC's exemption application was accompanied by a covering letter, a 'Rakaia Huts Exemption Attributes Table' (identifying the attributes from Hinekōrako, the self-service portal for drinking water supplies maintained by Taumata Arowai, and noting where supporting information can be found) and a proposed DWSP.
19. Additional supporting information was also provided, including contract documents, SDC's Compliance Monitoring Plan, Drinking Water Framework, Incident and Emergency Plan, Transgression Response Plan, and nine standard operating procedures (SOPs).
20. All the information provided is considered relevant and has been taken into account by the Exemptions Team.

Practical considerations

21. SDC's application states that the reasons for seeking a residual disinfection exemption for the Rakaia Huts supply are:
 - The Selwyn community has been vocal about their desire to avoid chlorination.
 - The requirement for chlorination is disproportionate to the scale, complexity and risk profile of the Rakaia Huts drinking water supply, which is a small (320 people) supply with a history of stable and high-quality drinking water and adequate protection measures already in place.
22. The application does not specify how the first of these reasons relates to consumers served by the Rakaia Huts supply, as opposed to Selwyn District residents more generally.
23. The time and cost associated with the design, installation and commissioning of residual disinfection systems can be relevant practical considerations for residual disinfection exemption applications. That is not the case here, as the infrastructure necessary to dose with chlorine as a residual disinfectant is in place and has been commissioned. The remaining practical considerations are consequently limited to operating costs and ongoing staff or contractor training requirements.

Available compliance pathways

24. Acceptable solutions are available as an alternative to complying with the Drinking Water Quality Assurance Rules and the need to have a DWSP which includes residual disinfection. The Rakaia Huts supply does not meet any of the eligibility criteria for drinking water acceptable solutions made by Taumata Arowai as at the date of this paper. The supply could comply with the Drinking Water Acceptable Solution for Spring and Bore Drinking Water Supplies if an end-point treatment device was available for each connection to the supply, rather than the centralised treatment approach currently used. This compliance pathway would not be a practical option.

Assessment process

25. Alongside the international panel member for this application, the Exemption Team assessed the documentation provided and met with SDC staff over Teams to discuss the application.
26. The Exemption Team and the international panel member carried out a site visit to the Rakaia Huts supply with SDC staff on 28 September 2022. The risk from human pathogenic enteric viruses and the concerns about supply leakage were noted and specifically raised with SDC staff during the site visit.
27. Queries and requests for clarification have been raised with SDC staff and responses received.

Assessment factors

28. SDC's application has been assessed against the relevant factors arising under the WSA, Taumata Arowai policy and guidance material in relation to exemption applications, and other considerations relevant to decision-making by Taumata Arowai and its staff.
29. Those factors, which shape the structure of the balance of this paper, are:
 - (a) The scale, complexity and risk profile of the drinking water supply, which go both to the assessment of drinking water safety risks and also to the proportionality of regulation under the WSA.
 - (b) The Treaty of Waitangi / te Tiriti o Waitangi and its principles, which are relevant considerations under s 19(1)(b) of the Taumata Arowai–the Water Services Regulator Act 2020 (**TAWSRA**).
 - (c) Te Mana o te Wai, to the extent it applies to SDC's application and the associated decision-making of Taumata Arowai.
 - (d) Consistency with the main purpose of the WSA: i.e. to ensure that drinking water suppliers provide safe drinking water to consumers. In accordance with s 58(3)(a) of the WSA, a residual disinfection exemption can only be granted if the decision-maker is satisfied that the exemption is consistent with the main purpose of the WSA.
 - (e) Compliance with legislative requirements and the DWSP (including the SWRMP). In accordance with s 58(3)(b) of the WSA, a residual disinfection exemption can only be granted if the decision-maker is satisfied that drinking water supplied by the supplier will comply with all other legislative requirements and the drinking water safety plan on an ongoing basis.
 - (f) The Taumata Arowai Compliance, Monitoring and Enforcement Strategy 2022-2025 (**CME Strategy**). This is a matter that the Taumata Arowai Chief Executive, and any delegate of the Chief Executive, must have regard to when determining exemption applications.¹

¹ WSA, s 136(7); TAWSRA, s 11(2)(b).

Scale, complexity and risk

30. The Rakaia Huts supply is a comparatively small, simple supply. It is a medium sized (101 – 500 people) ‘networked supply’ for the purposes of the Drinking Water Quality Assurance Rules (**DWQAR**). As such, the supply must comply with the G, S2, T2 and D2 rules modules within the DWQAR.
31. Given the supply’s groundwater source, particular risks stem from land use activities in the source water recharge area; notably the risk of contamination from domestic wastewater systems not controlled by SDC.
32. The relative scale, complexity and risk of the supply has been factored into the Exemption Team’s assessment of SDC’s application and the commentary and recommendations in this paper.

The Treaty of Waitangi / te Tiriti o Waitangi and its principles

33. Taumata Arowai and its staff are required to uphold the Treaty of Waitangi (te Tiriti o Waitangi) and its principles when carrying out their functions.²
34. What this means in practice varies from situation to situation, depending on the relevance of Treaty/te Tiriti provisions and associated principles, including: partnership, self-determination, mutual benefit, honour, active protection, options, right of development, informed decisions, equity and equal treatment, and other principles that may be developed or identified as relevant from time to time. There is also some overlap between these principles and aspects of Te Mana o te Wai, which is discussed in the next section of this paper.
35. SDC’s application does not include any information about the interests of mana whenua or other Māori (including consumers who are Māori) in relation to the Rakaia Huts supply, or indicate that any engagement with Māori has occurred in relation to the exemption application. This has a bearing on the Treaty/te Tiriti principle of informed decisions.³ The absence of specific information means that consistency with this principle has not been able to be considered in anything other than a generalised way. This overlaps with the consideration of Te Mana o te Wai as discussed below. SDC have advised that a formal relationship agreement with Te Taumutu Rūnanga was signed on 30 November 2022. Taumata Arowai looks forward to seeing how this agreement will be implemented in any future exemption applications for Rakaia Huts and other supplies where SDC applies for an exemption.

² TAWSRA, s 19(1)(b)(i).

³ That is, the onus to make a decision that is sufficiently informed as to the relevant facts and law so as to have regard to the impact (if any) on Treaty/te Tiriti principles. As a local authority, SDC is also subject to principles and requirements that relate to the Treaty of Waitangi and the involvement of Māori in its decision-making processes (as set out, for example, in section 4 of the Local Government Act 2002). However, SDC’s approach to those principles and requirements is not relevant to the assessment of its exemption application or a matter for the decision-maker to enquire into, to the extent these fall outside the scope of the concept of Te Mana o te Wai.

Te Mana o te Wai

36. For the purposes of the WSA, Te Mana o te Wai is defined in the National Policy Statement for Freshwater Management 2020. Everyone exercising or performing a function, power, or duty under the WSA must give effect to Te Mana o te Wai when doing so, to the extent it applies to the function, power, or duty.
37. Te Mana o te Wai is a water-centric concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community.
38. The framework for Te Mana o te Wai involves 6 principles relating to the roles of tangata whenua and other New Zealanders in the management of freshwater, coupled with a hierarchy of obligations that prioritises:
 - (a) first, the health and well-being of water bodies and freshwater ecosystems;
 - (b) second, the health needs of people (such as drinking water); and
 - (c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.
39. Te Mana o te Wai is likely to have relatively limited application in the context of a residual disinfection exemption, which is largely focussed on the treatment processes and operations within a drinking water supply. However, each case situation must be assessed on its facts and the extent of application of Te Mana o te Wai determined.
40. In this instance and as noted above, SDC has not provided any information or commentary on the implications of its proposal to operate the Rakaia Huts supply without residual disinfection from the perspective of Te Mana o te Wai. There is similarly no information about how the proposal relates to or reflects the roles of tangata whenua and other New Zealanders in the management of freshwater.
41. Without the benefit of commentary from SDC, the most relevant matter the Exemption Team has identified in relation to Te Mana o te Wai is the leakage level and the associated risk of contamination of the supply. This represents a degree of wastage and water safety risk that is arguably inconsistent with the concept of Te Mana o te Wai.

Consistency with the main purpose of the Water Services Act 2021

42. On the whole, the Exemption Team considers that the drinking water supply at Rakaia Huts is well set up and operated. It draws from source water that is of good quality and supply components include effective barriers to bacteria and protozoa. The distribution system is comparatively simple and short in length. Most risks in the supply are adequately managed.
43. However, there are a number of factors that affect the provision of safe drinking water to consumers and not all of these are adequately addressed in the supply set up, operation, or

associated planning. In the Exemption Team's view, these matters prevent the supply from being able to operate without residual disinfection in a manner consistent with the main purpose of the WSA. The relevant matters are discussed below.

Source water factors

44. Based on site observations, the Exemption Team identified a risk of ruminant faecal waste from grazing cattle in the recharge area for the Rakaia Huts' groundwater source. This presents a bacterial and protozoal risk at the surface.
45. The Exemption Team did not observe significant human faecal waste material; this was limited to domestic on-site wastewater systems serving individual properties.
46. SDC has not fully assessed the risk to health from viruses in the source water and the drinking water supply. There are other bores within the source water protection zone (as described in the SWRMP) that could provide a preferential pathway for contamination.
47. The Exemption Team was advised that the bore is screened at 21-23m below ground level, which is consistent with the indication in the DWSP for the supply. However, on-site there is a steep bank dropping down several metres away from the bore and the treatment plant (which are on higher ground). Information in the documentation in relation to the depth to screens consequently appears to overstate the protective benefits of the overlying strata, which are affected by the topography. When the bore pump is activated water may be drawn from parts of the aquifer that are not as well protected as is described in the SWRMP.
48. The bore is contained within a fenced, locked compound. The fence is wire mesh with barbed wire around the top. The bore is surrounded by a concrete apron, which appears to be suitably constructed and in good repair. Visible surface structures and potential entry points are secure and air vents are protected by mesh.
49. SDC advised the Exemption Team that security checks are carried out on a quarterly basis.
50. There is not currently any formalised preventative maintenance for the borehead security barriers to ensure that they are assessed and replaced or renewed proactively and prior to failure. This would include the bore casing integrity and grouting (less obvious features), as well as assessing the condition of existing surface infrastructure.
51. The key source water risk is that the SWRMP does not adequately consider human pathogenic virus risk. The risk of viruses is assessed as low but further work is required to demonstrate that there is no or negligible risk.
52. Another consideration is that future risks to source water will require management. Any intensification of farming or development of surrounding land into residential/lifestyle blocks with on-site wastewater systems will increase the risk of source water contamination. The dynamic nature of this risk is not reflected in the SWRMP.

Treatment factors

53. The supply involves the following treatment processes:

- (a) 1 µm cartridge filtration;
 - (b) continuous turbidity monitoring, with alarm;
 - (c) ultra-violet (**UV**) disinfection at a target dose of 40 mJ/cm², with flow, UV transmittance (**UVT**) and UV intensity (**UVI**) continuously monitored; and
 - (d) chlorination equipment is in place but is not routinely used and was not active at the time of the Exemption Team's site visit.
54. The Exemption Team was given to understand that the supply would be chlorinated pending determination of the SDC's residual disinfection exemption application. Chlorine is not stored on-site. SDC officers indicated that sodium hypochlorite would be transported to the site as a 12.5% stock solution and then diluted/contained on-site for dosing. There is a single dosing pump and dosing line. Continuous chlorine monitoring is available before and after the supply's treated water storage tanks.
55. The supply has 2 treated water storage tanks. The tanks are plastic and located underneath overhead lines that are used by birds for roosting. The overhanging lids on each tank prevent ingress of runoff. The tanks are in a compound but are not locked (or, at the time of the Exemption Team's site visit, lockable).
56. The treatment plant is located on a sweeping bend in the road. If a vehicle traveling at speed failed to take the bend it could crash into the compound. If that was to occur, the treated water storage tanks would be at particular risk.
57. Key treatment risks are:
- (a) The proposed frequency of checking for storage tank vulnerabilities ("condition assessments every 3 months" were reported in the DWSP) is inadequate for chlorine-free tanks with unlocked hatches. SDC advise that weekly/quarterly/annual checks are undertaken, but these are not reported in the DWSP and the C1241 Network Maintenance Contract (these sections were not provided for Taumata Arowai to review).
 - (b) Management options for risks arising from unlocked storage tank hatches need to be further developed.
 - (c) The lack of a formalised preventative maintenance programme or measures for tank security barriers to ensure that they are assessed and replaced or renewed proactively and prior to failure.
 - (d) Bird roosting on overhead wires presents a contamination risk, evidenced by faecal matter observed on tank roofs.
58. As a less pressing concern, risks arising from the treatment compound's vulnerable corner location should be expressly identified and mitigation or response plans developed.

Distribution factors

59. Non-testable dual check backflow prevention devices are installed on all residential connections to the supply. A reduced pressure zone device (**RPZD**) is also installed on the one commercial connection in the community. The Exemption Team observed the RPZD during its site visit. This aligns with the information found in the DWSP at *Table 2-13: Rakaia Huts Backflow Connection Summary (February 2021)*, which notes that backflow prevention is installed on every supply connection.
60. SDC have advised that every supply connection is metered. SDC can set a maximum life for meters and associated check valves and have a program to replace them over time. This also helps recover water, since meters tend to under-read as they age. SDC can also respond to industry trends towards using smart meters that help detect leaks, pressure, flow and other variables to help with network protection and consider adoption in due course.
61. Pressure is continuously monitored in the distribution system. The Exemption Team observed the pressure monitoring station during its site visit.
62. SDC advised that leakage from the supply's distribution is in the order of 17% (the Exemption Team was advised of this leakage rate during the site visit, and information in the DWSP reports this as a loss of 67 litres/connection/day). SDC did not report the Infrastructure Leakage Index (ILI) in supporting documentation. The Exemption Team regard the reported loss as higher than desirable for a comparatively small distribution zone if it is to operate without residual disinfection. Leakage introduces the risk of the ingress of contaminants. The distribution system is in an area serviced by domestic on-site wastewater systems that SDC does not control. It is important to maintain awareness of these systems – location, type, disposal and conditions – and risks around their integrity. There is currently no risk-based process around inspecting, promoting, and enforcing good practice in relation to the maintenance and operation of these systems (which could be developed in conjunction with the relevant regulator(s)).
63. It was clear from discussions with SDC staff that accurate calculations of water loss were difficult to obtain and there was not a full understanding of why water loss was occurring. Water loss is a critical factor for supplies operated without a residual disinfectant and SDC needs to demonstrate a better understanding of where, how and why water loss is occurring at the Rakaia Huts supply. Uncertainty around water loss causes or calculation also makes it challenging to predict the impact of any renewal or replacement work on leakage levels. Night flow measurements from June and November have been recorded and analysed. Consideration needs to be given to smart metering of night flows so that daily analysis can be undertaken.
64. The Exemption Team observed that the hydrant at 98 Pacific Drive is uncapped and situated below ground level. Hydrants must be maintained and appropriately protected. The DWSP records that the replacement of approximately 250m of mains piping is planned, with completion due by mid-2023. When replacing the water main, SDC needs to install hydrants that minimise ingress risk during loss of pressure. SDC should also proceed with plans to prevent tanker drivers filling from hydrants.

65. SDC provided some SOPs to the Exemption Team for review. The Exemption Team was unable to locate a distribution system repair procedure that appropriately reflected an absence of residual disinfection. It is important to formalise a 'repair and replace under pressure' procedure, given the on-site domestic wastewater systems in the area of the distribution network.
66. Key distribution risks are:
- (a) Given the scale and complexity of the supply and the close proximity of on-site domestic wastewater systems, the leakage level is inappropriate for the supply to operate without a chlorine residual and a clear understanding of leakage rates and causes has not been demonstrated.
 - (b) Planned pipe renewal (which may have a bearing on leakage) has yet to be completed; this work is identified in the DWSP as Improvement IA.RH.RR.01.
 - (c) The lack of a 'repair and replace under pressure' procedure for work on the distribution system.
67. A further consideration is that there is no process or plan to ensure system flushing is implemented so that any necessary chlorine dosing doesn't result in bio/chemo film stripping and dirty water (the flushing programme should be proactively checked and revised if necessary).

Drinking water safety plan

68. The Exemption Team reviewed the supply's DWSP.⁴ In general terms and subject to the issues identified in this paper, the DWSP addresses the hazards, risks and issues arising in a manner that the Exemption Team believes is appropriate for the scale, complexity and risk profile of the supply.
69. The DWSP initially provided in support of the exemption application was Revision 2, dated 23 June 2022. This DWSP referred to the requirements of the Drinking-water Standards for New Zealand 2005 (Revised 2018) (now revoked), and 'secure bore status' (not carried over as a concept in the DWQAR, which came into force on 14 November 2022).
70. An updated DWSP for the supply was uploaded into Hinekōrako on 14 November 2022. The Exemption Team also considered this updated document and its revised scope has been taken into account in the comments in this report. The updated DWSP is Revision 4, dated 27 September 2022. This DWSP identifies the applicable requirements of the DWQAR, including 'sanitary bore head' requirements.
71. The updated DWSP includes a SWRMP as Appendix 3. The SWRMP includes an assessment of the protozoa log credit requirements for the source of the supply. The SWRMP does not cover other risks to the source in great depth or detail. The bacterial risk discussion focuses on *E.coli* and does not record or present historical information about total coliforms. Although there is a

⁴ Document DW-RAK-00-WSP-0001, Revision 2, 23 June 2022.

chemical risk assessment based on previous monitoring, the potential hazards referenced in Section 8 of the SWRMP are generic in nature. The SWRMP does not address the risk of enteric virus contamination of the source satisfactorily.

72. The DWSP needs to be proactively updated as changes are made to the supply.

Transgression response plans and SOPs

73. SDC has prepared emergency response and transgression response plans to support its exemption application.⁵ These are separate documents from the DWSP, although they are complementary to it.
74. The response plans have a numerical trigger for response to total coliforms detection that does not appear to have a logical basis.
75. The proactive response to changes in the supply – e.g. pressure or in the event of a mains break – is not clear.
76. There is no provision to monitor and set thresholds on temperature to control opportunistic pathogens during summer months given the absence of a residual chlorine, or to include an associated trigger for residual chlorine dosing.
77. Transgression response plans and emergency response plans need to be clear on thresholds for chlorination, particularly around total coliforms and incidents such as mains breaks, loss of pressure, or other changes in source water.
78. There is no community communication plan to inform consumers that chlorine may need to be dosed at any time, and at SDC's discretion, as a back up to the filter or UV systems or where there is a need for a residual disinfectant in the supply's distribution system: e.g. during repair and maintenance work, or in response to water quality test results or other incidents. SDC appears to have in place a txt and Email notification system but it is not clear that this is part of a specific communications plan relevant to the Rakaia Huts supply.

System factors

79. The monitoring plans for the supply are based on the DWQAR. However, non-chlorinated supplies require more stringent monitoring. For example, the Exemption Team consider that the DWSP should provide for heterotrophic plate counts to be carried out at appropriate locations within the supply. These should be provided for as part of regular monitoring and in response to total coliform or *E.coli* detection or other incidents.
80. Maintaining staff capacity and competency is particularly important for unchlorinated supplies. SDC should be actively working to ensure staff do not become complacent about supply risks or operation. SDC can look to formalise a means to maintain organisational and technical capacity (head count, training, competency, capacity, awareness) for both the SDC and principal contractors. This should include awareness-raising at senior executive and councillor level of

⁵ Document GEN-07-DST-0007, Revision 2, 17 June 2022.

need to maintain this capacity. This extends to frontline worker contractors that do the risky work, and how risks associated with staff and contractor turnover are mitigated.

Compliance with legislative requirements

81. A residual disinfection exemption cannot be granted unless the decision-maker is satisfied that the drinking water supplied will comply with all other legislative requirements (i.e. other than the usual requirement to provide for residual disinfection) on an ongoing basis.
82. 'Legislative requirements' has a particular meaning⁶ that covers requirements imposed by the WSA, most secondary legislation made under the WSA (such as drinking water standards and the DWQAR), and some enforcement instruments (directions or compliance orders issued under the WSA).
83. The supply's previous compliance history is noted under the 'Supply information' heading above. It is evident that SDC carried out more extensive source water monitoring for the supply than was required under the previous regulatory regime.
84. SDC's updated DWSP identifies the correct rules modules in the DWQAR and also indicates that SDC has elected to comply with the 'T3' treatment rules, which is a voluntary decision to adopt more stringent treatment requirements. SDC is unable to demonstrate a history of compliance with chemical monitoring requirements analogous to those now in the 'D2' distribution rules, but those requirements are a new feature of the DWQAR so that absence is unsurprising.
85. Having regard to the supply's previous compliance history and monitoring results, and the DWSP and the decisions it reflects, the Exemption Team considers that there are grounds to be satisfied that the drinking water supplied will comply with all 'other' legislative requirements on an ongoing basis. If a decision was made to grant the residual disinfection exemption, any uncertainty about SDC's ability to comply with the D2 distribution rules could be mitigated by the insertion of a condition requiring elevated monitoring against that rule set for a period of time in order to provide further assurance of compliance.

Compliance with drinking water safety plan

86. A residual disinfection exemption cannot be granted unless the decision-maker is satisfied that the drinking water supplied will comply with the relevant DWSP on an ongoing basis.
87. The Exemptions Team is not aware of any information or issues that suggest drinking water supplied by the Rakaia Huts supply would not comply with the DWSP on an ongoing basis, if the DWSP was considered suitable to enable the grant of a residual disinfection exemption.

⁶ WSA, s 5.

Compliance, Monitoring and Enforcement Strategy

88. The CME Strategy outlines the approach Taumata Arowai will take to exemption applications. It provides part of the backdrop for the more detailed provisions in other Taumata Arowai policy and guidance material.
89. Amongst other things, the CME Strategy provides that Taumata Arowai will be guided by the following principles when determining exemption applications:
- consumption of safe drinking water by consumers is paramount; and
 - the scale, complexity and degree of risk associated with a drinking water supply will affect the assessment of whether an exemption would be consistent with the main purpose of the WSA, to ensure that drinking water suppliers provide safe drinking water to consumers.
90. The Exemption Team has had regard to the relevant parts of the CME Strategy when conducting its assessment and preparing this paper. The principles recorded in the CME Strategy are reflected in the discussion above.

Additional comments

91. The Exemption Team considers that the Rakaia Huts supply cannot currently be operated without residual disinfection in a way that is consistent with the main purpose of the WSA.
92. However, if the matters in paragraphs 3 and 4 of this paper were addressed and suitable conditions imposed, the Exemption Team considers it likely that it could recommend a decision to grant a residual disinfection exemption for the supply. This would also be contingent on:
- no new issues emerging that materially change the assessment of the supply; and
 - information or commentary from SDC being made available to enable further assessment of the operation of the supply without residual disinfection from the perspective of Te Mana o te Wai (and consequently the Treaty/Te Tiriti).
93. In addition to the items above, the Exemption Team considers that the following matters could also usefully be addressed, without being essential to the grant of an exemption:
- (a) Future risks to source water will require management. Any intensification of farming or development of surrounding land into residential/lifestyle blocks with on-site wastewater systems will increase the risk of source water contamination. The dynamic nature of this risk should be reflected in the SWRMP.
 - (b) There should be a formalised preventive maintenance programme or measures for tank security barriers to ensure that they are assessed and replaced or renewed proactively and prior to failure. This should include all potential contaminant entry points (seals, general roof structure, vents) as well as security (fencing, bore head apron, etc).
 - (c) Risks arising from the treatment compound's vulnerable corner location should be expressly identified and mitigation or response plans developed.

- (d) Ensure system flushing is implemented so that chlorine dosing doesn't result in bio/chemo film stripping and dirty water (the flushing programme should be proactively checked and revised if necessary).

Approval

The Exemption Team recommends that you:

- (a) **note** the Exemptions Team's views that, having regard to the scale, complexity and risk profile of the Rakaia Huts supply:
- the supply cannot currently be operated without residual disinfection in a way that is consistent with the main purpose of the WSA;
 - aside from residual disinfection, there are grounds to be satisfied that the drinking water supplied by the supply will comply with all other legislative requirements on an ongoing basis;
 - there are grounds to be satisfied drinking water supplied by supply will comply with the DWSP on an ongoing basis; and
 - on the information available, granting a residual disinfection exemption would arguably be inconsistent with, and therefore not give effect to, Te Mana o te Wai.
- (b) **agree** to decline the residual disinfection exemption application for the Rakaia Huts drinking water supply. Yes No

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Ray McMillan
Head of Regulatory

Date: 27 April 2023