



Ministry for the  
**Environment**  
*Manatū Mō Te Taiao*

# Review of National Environmental Standard for Sources of Human Drinking Water

SUMMARY REPORT

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# Executive summary

The Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007 ('Drinking Water NES') came into effect in June 2008. It imposes requirements on regional councils and territorial authorities when making certain planning and consenting decisions under the Resource Management Act (RMA) that could affect the quality of drinking water.

The intent of the regulations was to reduce the likelihood that water bodies used for community drinking water supply contain contaminants that adversely affect the safety and wholesomeness of drinking water (after it has undergone a treatment process).

The Ministry for the Environment (the Ministry) initiated a review of the Drinking Water NES in June 2017. The review sought to assess the implementation and effectiveness of the Drinking Water NES, and to consider the findings of the Government Inquiry into Havelock North Drinking Water.

Overall, the review found a need to improve the current practices of many regional councils in managing risks to drinking water sources. A key issue identified was insufficient monitoring of changes to drinking water quality before treatment, which is critically important for informing applicable RMA decisions.

The key findings of the review of Drinking Water NES are:

- the implementation of the Drinking Water NES varies across the country, and many regional councils do not have clear methods and processes in place for identifying activities that need to be assessed against the requirements of the regulations
- while this variation does not necessarily indicate regional councils are not meeting their obligations under the Drinking Water NES, it is clear that the existing regulations are not promoting consistency in RMA decision-making with regards to activities that pose a risk of contamination of community drinking water supplies
- following the introduction of the Drinking Water NES, regional councils have taken steps to consider risks of contamination in certain RMA decisions. However, the available evidence suggests this has not had any discernible impact on the concentration of contaminants in drinking water supplies
- achieving the purpose of the Drinking Water NES would require regional councils to apply the regulations to a wider range of activities and RMA decisions (beyond those prescribed under the regulations). This suggests the regulations are not fit for purpose.

These findings and evidence are consistent with the findings of the Government Inquiry into Havelock North Drinking Water ('the Inquiry'). This indicates the issues identified by the Inquiry are not confined to Hawke's Bay and water supplies in other regions may also be exposed to a risk of contamination.

To improve the effectiveness of the Drinking Water NES the Inquiry recommended significant changes to the regulations, including using source protection zones to define the spatial area to which the regulations apply and extending the scope of the regulations to apply to a wider range of activities governed by the RMA.

The Government is considering the Inquiry's recommendations, along with the findings of the review of the Drinking Water NES, as part of a system-wide review of the drinking water

regulatory framework in New Zealand. Further information is available on the Ministry of Health's [website](#).

Further information on the Drinking Water NES is available on the Ministry [website](#).

# Introduction

National environmental standards are regulations made under section 43 of the Resource Management Act 1991 (RMA). They can prescribe standards, methods, or other requirements relating to specific environmental or planning matters. Each regional council and territorial authority has responsibility for enforcing the applicable standards in its jurisdiction. A local authority rule may prevail over a national environmental standard where the standard expressly allows this. National environmental standards not only aim to protect people and the environment, they also aim to establish consistent approaches to decision-making.

## The Drinking Water NES

The Resource Management (National Environmental Standard for Sources of Human Drinking Water) Regulations 2007 ('Drinking Water NES') came into effect on 20 June 2008.

The intent of these regulations is to reduce the likelihood that water bodies used for community drinking water supply contain contaminants adversely affecting the safety<sup>1</sup> and wholesomeness<sup>2</sup> of the drinking water after it has undergone a 'treatment process'<sup>3</sup>.

The Drinking Water NES requires regional councils and territorial authorities to consider risks to drinking water sources in applicable RMA planning and consenting decisions.

Specifically, it requires regional councils to:

- decline discharge or water permits that pose certain risks to the quality of a drinking water supply
- be satisfied that permitted activities in regional plans will not pose certain risks to the quality of a drinking water supply .

It also requires regional councils and territorial authorities to:

- consider whether the activity may, directly or indirectly, have a significant adverse effect on the quality of a community drinking water supply, before determining a resource consent application
- place conditions on relevant resource consents that require notification to a drinking water supplier and the consent authority if an event (eg, a chemical spill) that could significantly affect the safety of a community drinking water supply occurs.

The Drinking Water NES is not a stand-alone regulation. It is part of New Zealand's drinking water regulatory system, which is also governed by provisions in the Health Act 1956, Local Government Act 2002, and Building Act 2004 (figure 1). The overarching aim of the drinking

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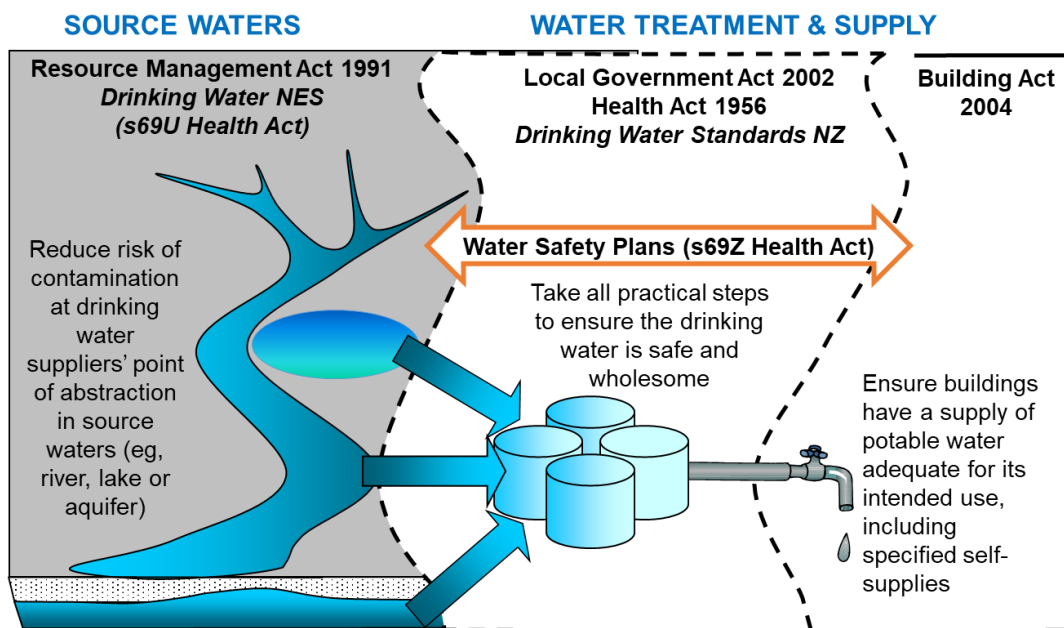
<sup>1</sup> Refers to concentration of contaminants in drinking water that pose a risk to human health.

<sup>2</sup> Refers to the taste, odour, colour, clarity or general appearance of drinking water, including substances that can stain washing and utensils.

<sup>3</sup> Under the Drinking Water NES, 'treatment process' refers to chemical, biological, or physical processes carried out after water is abstracted to enhance its quality before it enters the water supply distribution system. In certain circumstances it can also refer to the abstraction of water without chemical, biological, or physical processes.

water regulatory system is to promote adequate supplies of safe and wholesome drinking water as stipulated in part 2A of the Health Act.

**Figure 1: Legislation governing drinking water supply**



## Drivers for developing Drinking Water NES

The Drinking Water NES was developed to complement the Health (Drinking Water) Amendment Act 2007. Together these reforms sought to establish a multi-barrier approach for managing risks to community drinking water supplies from 'source to tap'.

The multi-barrier approach to drinking water safety involves the use of risk management and quality assurance methods to reduce the risk of contamination of drinking water supplies. These methods can include treatment processes, water quality monitoring, and placing controls on activities posing a risk of contamination of drinking water sources.

The Drinking Water NES introduced requirements for regional councils to control certain activities that can affect the safety and wholesomeness of community drinking water supplies.

## Role of the Drinking Water NES in safe drinking water

Most groundwater or surface water sources of drinking water supply in New Zealand are in catchments containing land-use activities that can pose a potential risk of contamination.

These catchments are managed for many different purposes, such as agriculture, industry and recreation, all of which can affect the quality of the raw water being abstracted for drinking water supply. Hence drinking water suppliers use chemical, biological and/or physical treatment processes to remove or reduce the concentration of contaminants to provide safe and wholesome drinking water.<sup>4</sup> However, changes to the intensity or composition of land-use activities in the catchment can introduce new contaminants or increase the concentration of

<sup>4</sup> Before the Havelock North contamination event it was common for some water supplies to use minimal or no treatment if the source waters were classified as 'secure groundwater'.



existing contaminants in the source waters. If the current treatment processes are not able to address the increase in contaminants then it increases the risk of the drinking water supply exceeding the maximum allowable values of contaminants (as specified in the Drinking Water Standards for New Zealand<sup>5</sup>), thus affecting the water supplier's ability to provide safe and wholesome drinking water.

In some instances drinking water suppliers may be able to mitigate these risks through increasing or changing treatment processes, but this may involve significant additional costs. Some contaminants are also not removable by conventional treatment processes, or the costs of treatment are such that the supply of drinking water becomes financially unsustainable for the community.

The role of the Drinking Water NES is to ensure regional councils are considering the impacts of certain activities on drinking water suppliers' ability to provide safe and wholesome drinking water.

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<sup>5</sup> Ministry of Health. 2008. *Drinking-water Standards for New Zealand 2005 (Revised 2008)*, Wellington: Ministry of Health.

# Review of the Drinking Water NES

The Ministry initiated a review of the Drinking Water NES in June 2017 as part of its regulatory stewardship strategy published in September 2016.

The purpose of the review was to:

- (a) assess the implementation of the Drinking Water NES by regional councils and territorial authorities
- (b) evaluate the effectiveness of the Drinking Water NES, and whether it remains fit-for-purpose.

Following the release of the stage 2 report of the Government Inquiry into Havelock North Drinking Water in December 2017, Cabinet directed the Ministry to consider the Inquiry's findings and recommendations when evaluating the effectiveness of the Drinking Water NES.

Further information on the Government Inquiry into Havelock North Drinking Water can be found on Department for Internal Affairs' [website](#).

## Drinking water supplies, sources, and the Drinking Water NES

There are approximately 1400 community drinking water supplies in New Zealand. These supplies vary in size from 'neighbourhood' supplies serving 25 to 100 people to large, municipal supplies serving more than 10,000 people<sup>6</sup> (table 1).

Each of these drinking water supplies abstracts raw water from a natural water body or 'source', which can be groundwater or surface water. In some cases, multiple sources are used to provide raw water for the same drinking water supply. The majority of the abstraction points for these drinking water supplies are located in groundwater sources (53%), followed by surface water sources (26%)<sup>7</sup>. The remaining sources (21%) are rainwater collection systems, which fall outside the scope of the Drinking Water NES.

Regulations 7, 8 and 10 of the Drinking Water NES apply to registered drinking water supplies serving more than 500 people for at least 60 days per calendar year. Regulation 12 applies to registered drinking water supplies serving more than 25 people for at least 60 days per calendar year (table 1).

The Drinking Water NES also allows local authorities to adopt more stringent requirements than those contained in the regulations. In addition, regional councils can choose to apply the approach set out in the regulations to drinking water supplies serving less than 500 people, if deemed appropriate for managing risks to these smaller drinking water supplies.

The specific requirements of regulations 7, 8 and 10 are explained in detail below.

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<sup>6</sup> The number of water supplies serving >25 people as contained in the Ministry of Health drinking water register on 1 July 2017, including specified self-supplies.

<sup>7</sup> Based upon data contained in the Ministry of Health drinking water register on 1 July 2017.

**Table 1: Water supplies in New Zealand<sup>8</sup>**

Size	Population	Number	%	Applicable Drinking Water NES regulations
Large	>10,000	43	3%	7, 8, 10 and 12
Medium	5001 to 10,000	25	2%	7, 8, 10 and 12
Minor	501 to 5000	214	14%	7, 8, 10 and 12
Small	101 to 500	431	29%	12 only
Neighbourhood	25 to 100	763	52%	12 only

## Methodology for the review

The purpose of the review was to assess the implementation and effectiveness of the Drinking Water NES, and to consider the findings of the Government Inquiry into Havelock North Drinking Water. The review sought to answer two key questions.

- (a) To what extent have regional councils and territorial authorities observed the Drinking Water NES in relevant planning and consenting decisions?
- (b) Has the Drinking Water NES achieved its intended outcomes, and does it remain fit-for-purpose?

The Ministry adopted a mixed-methods approach for data collection and analysis to address these two key questions. This included:

- surveys and questionnaires for each regional council
- questionnaires for a sample of territorial authorities
- analysis of policies and regulations contained in regional planning documents
- analysis of consenting data made available by regional councils
- a workshop with representatives from each regional council including staff with policy, consenting, and scientific expertise
- review of drinking water quality information contained in the Water Information New Zealand database (accessed with permission from Ministry of Health)
- assessment of consented activities located within drinking water catchments and aquifer recharge areas
- assessment of the findings of the Government Inquiry into Havelock North Drinking Water.

The review was conducted in two phases. Phase 1 focused on the implementation of the Drinking Water NES by regional councils and territorial authorities and phase 2 focused on the effectiveness of the regulations. The review focused on implementation and effectiveness at the national and regional level and did not consider the effectiveness of the regulations for individual water supplies.

This report summarises the key findings of the review based on the best available information.

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<sup>8</sup> Based upon data contained in the Ministry of Health drinking water register on 1 July 2017.

**Note:** The review focused on the Drinking Water NES and did not seek to review the wider drinking water regulatory system.

# Findings from phase 1: Implementation of Drinking Water NES

Phase 1 of the review focused on assessing the extent to which regional councils and territorial authorities implemented the Drinking Water NES within applicable consenting and planning decisions.

The assessment was based on information provided by regional councils in response to a joint survey prepared by Local Government New Zealand and the Ministry in mid-2017. The Ministry collected further information from regional councils and a small sample of territorial authorities in late 2017. A desktop review of operative and proposed regional plans was also undertaken.

## Requirements for regional councils and territorial authorities under the Drinking Water NES

The Drinking Water NES applies to certain activities regulated under the RMA. As indicated in table 2, regulations 7 and 8 apply to water and discharge permits, regulation 10 applies to permitted activities, and regulation 12 applies to consent applications and consented activities that pose risk of significant contamination of a drinking water supply's source water as a result of an accident or event. The majority of the regulations contained in the Drinking Water NES apply to regional councils, with regulation 12 applying to both regional councils and territorial authorities.

**Table 2: Summary of Regulations 7, 8, 10 and 12 of Drinking Water NES**

Regulations 7, 8 and 10
<ul style="list-style-type: none"><li>Regional councils must not grant a discharge or water permit (regulations 7 and 8) or classify activities as permitted (regulation 10) if the associated activities pose certain risks to the quality of a drinking water supply. These risks must be based on the water supply's current level of compliance with the requirements set out in the Drinking Water Standards for New Zealand (DWSNZ).</li><li>Applies to applicable permits and activities occurring 'upstream' or 'up-gradient' of registered drinking water supplies serving &gt;500 people for &gt;60 days per calendar year.</li></ul>
Regulation 12
<ul style="list-style-type: none"><li>When considering a resource consent application, regional councils and territorial authorities must consider whether the activity may, directly or indirectly, have a significant adverse effect on water quality as a result of an event (eg, chemical spills).</li><li>Regional councils and territorial authorities must include an emergency notification condition on consented activities that pose risk of significant contamination to a registered drinking water source as a result of an accident or event (regulation 12).</li><li>Applies to applicable activities occurring 'upstream' or 'up-gradient' of registered drinking water supplies serving &gt;25 people for &gt;60 days per calendar year.</li></ul>

To determine whether regulations 7, 8 or 10 apply to an activity proposed for a permit, or for permitted activity status, in practice, regional councils first need to identify whether the activity will be located upstream or up-gradient of a drinking water source (that meets the necessary criteria) and whether the activity is likely to affect raw water quality at the point from which the drinking water is abstracted. If they consider that raw water quality will be affected then they need to determine whether the anticipated changes or increase in the concentration of contaminants will adversely affect the quality of the drinking water beyond

what is allowed under the regulations.<sup>9</sup> The regional council must then determine if the permit application needs to be declined (or modified) in accordance with regulations 7 and 8, or if the proposed permitted activity rule needs to be removed (or modified) in accordance with regulation 10.

To determine whether regulation 12 applies in the context of a consent application, in practice, regional councils and territorial authorities need to identify whether the associated activity will be located upstream or up-gradient of a drinking water source (that meets the necessary criteria) and whether the activity will pose a risk of significant contamination to a registered drinking water source as a result of an accident or event.

The regional council or territorial authority must then determine if the consent is required to include an emergency notification condition in accordance with regulation 12.

Regulations 7, 8, 10 and 12 could apply to many activities. Examples include wastewater and stormwater discharges, water takes or diversions, effluent discharges from farming and processing facilities, septic tanks, earthworks, and activities involving the use or storage of hazardous chemicals.

The effective functioning of regulations 7, 8, 10 and 12 requires councils to understand the spatial area upstream or up-gradient within which proposed consented or permitted activities could have an impact on raw water quality at a drinking water supply's abstraction point. Many methodologies can be used for identifying the spatial area upstream or up-gradient. One common method is the delineation of drinking water source protection zones<sup>10</sup>, which define the spatial extent of the source waters where risks of contamination need to be managed.

## **Implementation of the Drinking Water NES in consenting decisions**

This section summarises the assessment of the extent to which local authorities have observed the Drinking Water NES in consenting decisions. The assessment focused on the processes regional councils have in place to observe regulations 7, 8 and 12 of the Drinking Water NES in applicable RMA decisions. It also assessed the implementation of regulation 12 by a sample of territorial authorities.

Six criteria were developed to assess the extent to which regional councils have observed regulations 7, 8 and 12 in applicable consenting decisions. The criteria focused on the presence or absence of protocols for observing the Drinking Water NES in consenting decisions, evidence of the number of applicable consent decisions, and the use of clearly defined methodologies for identifying applicable consent applications. This information was combined to benchmark the overall level of implementation of the Drinking Water NES in all applicable consenting decisions, which was used as a proxy for assessing the observance of regulations 7, 8 and 12 by each council (rather than assessing its observance in individual consenting decisions).

Table 3 indicates each regional council's overall level of implementation as assessed against the six criteria. Seven councils had a high level of implementation, seven as medium, and two as low. A medium or low level of implementation does not necessarily imply the council is not

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<sup>9</sup> Based upon the drinking water supply's compliance with the DWSNZ as indicated in the national drinking water quality database maintained on behalf of the Ministry of Health.

<sup>10</sup> Pattle Delamore Partners and Institute of Environmental Science and Research, 2005 *Methodology for the delineation of drinking water catchments*, report prepared for the Ministry for the Environment.

observing the Drinking Water NES. For example, 10 councils were assessed as having a clearly defined methodology for identifying applicable water and discharge consent applications, whereas the other five councils were using a case-by-case approach. The latter five councils may still be observing the regulations, but in the absence of an appropriate methodology for identifying applicable consent applications, there are likely to be inconsistencies in the way the regulations are being applied.

A limitation of this assessment of council implementation is that it did not reveal the number of consent applications that had been declined (or modified) by each regional council in accordance with regulations 7 and 8.

**Table 3: Implementation of Drinking Water NES by regional councils**

Council	Consenting decisions	Regional plans
Auckland	Med	Med
Bay of Plenty	Med	Low
Canterbury	Med	High
Greater Wellington	Med	High
Gisborne	Med	Med
Hawke's Bay <sup>11</sup>	High	Med
Horizons	High	Med
Marlborough	High	Med
Nelson City	High	Low
Northland	Med	Med
Otago	High	Med
Southland	Med	Med
Taranaki	High	Med
Tasman	Low	Med
Waikato	High	Low
West Coast	Low	High

A sample of territorial authorities were also surveyed to assess the extent to which city and district councils have observed regulation 12 in applicable consenting decisions.

None of the seven territorial authorities that responded indicated it had issued any resource consents with an emergency notification condition as per regulation 12. The majority of territorial authorities suggested regulation 12 of the NES was generally not applicable to their consenting decisions and was a regional council function.

Two territorial authorities indicated they were considering regulation 12 in resource consenting decisions, but did not have clearly defined methodology for identifying applicable consents that require the inclusion of an emergency notification condition.

<sup>11</sup> For Hawke's Bay Regional Council the assessment was based on its level of implementation of the Drinking Water NES after it had taken actions to address issues with its consenting processes, as noted by the Government Inquiry into Havelock North Drinking Water in its Stage 1 report.

Due to the small number of territorial authorities responding to the survey, it is unclear whether these findings are representative of the level of implementation of all city and district councils. It suggests, however, the level of implementation by territorial authorities is potentially low, and that many may be unaware of their obligations under the Drinking Water NES.

## **Implementation of the Drinking Water NES in regional plans**

This section summarises the extent to which regional councils observed the Drinking Water NES in their regional plans. As indicated in table 2, regulation 10 applies to permitted activities in regional plans, so the assessment focused on the content of operative and proposed regional plans.

The Drinking Water NES includes transitional timeframes for councils to update regional plans as per regulation 10. This means that regional councils are not required to amend existing plan rules until either a scheduled plan review takes place or a plan change or variation related to the rules is introduced. This transitional period also applies to rules in proposed plans if the closing date for submissions on the plan pre-dated the Drinking Water NES. Regional councils must still apply regulation 10 when making decisions on other proposed permitted activities from the commencement date of the Drinking Water NES.

Four criteria were developed to assess the extent to which regional councils have observed regulation 10. Due to a wide range of permitted activities falling under the scope of regulation 10, the criteria focused on regional council decision-making processes and the presence or absence of specific provisions in regional plans. This information was combined to benchmark the overall level of implementation of the Drinking Water NES in regional plans, which was used as a proxy for assessing the observance of regulation 10 by each council (rather than assessing whether individual permitted activity rules comply with regulation 10).

Table 3 indicates each regional council's level of implementation in regional plans based on assessment against the four criteria. Three councils had having a high level of implementation, 10 as medium, and three as low. As indicated above, a medium or low level of implementation does not necessarily imply the council is not observing the Drinking Water NES in regional plans. For example, six regional councils have considered the requirements of regulation 10 in their operative regional plan, while eight councils have an operative plan that predates the introduction of the Drinking Water NES. The latter eight councils may still be observing regulation 10, but it is not clear if they have identified any affected resource users or undertaken any actions to ensure permitted activities comply with the requirements of the Drinking Water NES.

## **Implementation issues reported by regional councils**

The review identified many common issues experienced by regional councils in the implementation of the Drinking Water NES in RMA decision-making processes.

The most prominent issue was lack of up-to-date and accurate data on the location of registered drinking water supply abstraction points. While this data was provided to regional councils in 2009, councils expressed concerns over the reliability and accuracy of this data, and the data on DWSNZ compliance contained in the online database Water Information New Zealand.



Other implementation challenges identified included:

- difficulty understanding the extent of drinking water supply catchments to identify consent applications that are upstream or up-gradient of a registered drinking water supply, particularly for groundwater sources
- lack of information on the quality of the source waters before treatment (ie, raw water) quality
- difficulty applying the Drinking Water NES to protozoal compliance as defined in the DWSNZ, which is based on levels of treatment rather than concentration of contaminants in source waters
- difficulty distinguishing between insufficient treatment and insufficient monitoring to how a drinking water supply's current levels of compliance with the DWSNZ is reported.
- difficulty addressing existing land-use activities that are affecting water quality in drinking water sources (outside current scope of the Drinking Water NES)
- unwillingness of water suppliers or owners of private supplies to invest in the development of source protection zones (outside current scope of the Drinking Water NES)
- unclear whether the costs of technical work to assess risks to drinking water sources should be borne by regional councils, consent applicants, or water suppliers.

## **Summary of findings from phase 1**

Phase 1 of the review assessed the extent to which the Drinking Water NES has been observed in consenting decisions and regional plans. This was based on criteria addressing the implementation of regulations 7, 8, 10 and 12 in applicable decision-making processes.

The review found the level of implementation of the Drinking Water NES in consenting decisions and regional plans is variable across different regions. In most cases, larger regional councils were assessed as having a higher level of implementation than smaller regional councils. For territorial authorities the available information indicated that the level of implementation is potentially low. The review also revealed many councils did not have an appropriate methodology for identifying applicable consented and permitted activities that fall within the scope of regulations 7, 8, 10 and 12. In the absence of clearly defined methodologies there are likely to be inconsistencies in the way the regulations are being applied by these councils.

Regulations 7, 8, 10 and 12 do not prescribe the use of any particular methods for identifying applicable consented and permitted activities, so the variation in implementation by regional councils does not indicate they are not observing the Drinking Water NES. It does indicate the Drinking Water NES is not promoting consistency in RMA decision-making to activities posing a risk of contamination of drinking water supplies.

# Phase 2: Effectiveness of the Drinking Water NES

Phase 2 of the review focused on assessing the extent to which the Drinking Water NES has achieved its intended outcomes and whether it remains fit for purpose.

The assessment was based on two technical reports commissioned by the Ministry in April 2018. Drinking Water NES also considered the findings and recommendations of the Government Inquiry into Havelock Drinking Water.

## Intended outcomes of the Drinking Water NES

The overarching intent of the Drinking Water NES is to reduce the likelihood water bodies used for community drinking water supply contain contaminants that adversely affect the safety<sup>12</sup> and wholesomeness<sup>13</sup> of a drinking water supply.

The Section 32 report<sup>14</sup> for the Drinking Water NES indicated the regulations were intended to contribute to a multi-barrier approach for managing risks to drinking water and to ensure there are appropriate controls on activities located within drinking water supply catchments.

Evaluating the effectiveness of the Drinking Water NES requires an assessment of any changes that have occurred since the introduction of the regulations in 2007 regarding:

- the concentration of contaminants in drinking water
- controls on activities within drinking water catchments.

## Assessing changes in concentration of contaminants in drinking water

The Institute of Environmental Science and Research (ESR) maintains information on drinking water quality on behalf of the Ministry of Health. The Ministry for the Environment commissioned ESR to review changes in drinking water quality from 2005 to 2017 to assess if the Drinking Water NES had a measureable impact on the concentration of contaminants in drinking water<sup>15</sup>.

ESR assessed changes in DWSNZ compliance data for *Escherichia coli* (*E. coli*), protozoa, and chemicals for all registered drinking water supplies serving 100 or more people, as a proxy for

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<sup>12</sup> 'Safety' refers to the determinands listed in in table 2.1, 2.2, 2.3, or 2.4 of the Drinking-water Standards for New Zealand.

<sup>13</sup> 'Wholesomeness' refers to the aesthetic determinands described in table A2.1 in Appendix 2 of the Drinking-water Standards for New Zealand.

<sup>14</sup> Ministry for the Environment, 2007, *Proposed National Environmental Standard for Sources of Human Drinking Water: Resource Management Act Section 32 - Analysis of the costs and benefits*, Wellington.

<sup>15</sup> Institute of Environmental Science and Research, 2018, *Changes in New Zealand drinking-water quality since 2005*, Report prepared for the Ministry for the Environment.

changes in the concentration of contaminants. ESR compared different regions and drinking water supplies serving more than 500 people with those serving 101-500 people.

At the national level, ESR found a general trend of increasing levels of DWSNZ compliance between 2005 and 2017. The exception was chemical compliance in drinking water suppliers serving 101-500 people, where no clear trend was evident. For *Escherichia coli* (E. coli) and protozoa there was no significant difference between suppliers serving more than 500 people and those serving 101-500 people.

At the regional level ESR found levels of DWSNZ compliance were more variable. Some regions exhibited gradual increases in levels of compliance while at least one region (Hawke's Bay) indicated recent decline in compliance across all registered supplies. ESR indicated the variation in DWSNZ compliance in many regions is often due to some water supplies in the datasets, which tended to skew the data.

Based on this assessment of DWSNZ compliance data ESR concluded it is not possible to determine if the introduction of the Drinking Water NES had any impact on the concentration of contaminants in drinking water. They attributed changes in DWSNZ compliance between 2005 and 2017 to the Health (Drinking Water) Amendment Act 2007, which required drinking water suppliers to take all reasonable steps to comply with the DWSNZ.

ESR indicated monitoring source water quality (ie, before abstraction and treatment) would provide a better way of assessing the influence of the Drinking Water NES on concentrations of contaminants in drinking water. However, ESR does not collect this information, as there is no direct obligation for water suppliers or regional councils to monitor source water quality.<sup>16</sup>

## Assessing controls on activities within drinking water catchments

Phase 1 of the review found regional councils have been observing the Drinking Water NES in certain RMA planning and consenting decisions, albeit with variable levels of implementation between different regions. These findings indicate the introduction of the Drinking Water NES in 2007 has resulted in the establishment of processes for considering risks to drinking water supplies in RMA decisions. It is unclear from the available information whether this has translated into appropriate controls on individual activities in drinking water catchments.

To address this gap the Ministry worked with regional councils to collate data on the location of consented activities that could potentially pose a risk of contamination of drinking water supplies, including land-use activities, discharges, and water takes. The Ministry commissioned Aqualinc to process this data and identify how many of these activities were located within proximity of drinking water supplies serving >100 people and >500 people.<sup>17</sup>

The data prepared by Aqualinc indicates that many of these activities are located within the vicinity of the abstraction point for drinking water supplies. Many of these activities (eg, earthworks and certain types of farming activities) fall outside the scope of the Drinking Water

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<sup>16</sup> Regional councils are required to monitor water quality for State of Environment monitoring purposes but this data does not provide the detail required to assess changes in raw water quality for individual drinking water supplies.

<sup>17</sup> Aqualinc Research Ltd, 2018, *Water Source Protection Zones: Delineation methodology and potential impacts of national implementation*, Report prepared for the Ministry for the Environment.

NES or were consented before the introduction of the regulation in 2007. This suggests the narrow scope of the Drinking Water NES has potentially limited its effectiveness by only addressing certain types of activities (ie, water and discharge permits) and by making no provision for regional councils to review previously consented activities that pose a risk of contamination.

These findings are consistent with the findings of the Government Inquiry into Havelock North Drinking Water.

## Havelock North Inquiry

The Government Inquiry into Havelock North Drinking Water ('the Inquiry') investigated the Havelock North water supply contamination incident of August 2016.

The Inquiry assessed the causes of the contamination and the response by local and central government agencies, and considered how to reduce the risk of contamination events recurring in the future.

The Inquiry's stage 2 report included an assessment of the role of the Drinking Water NES in reducing the risk of contamination of drinking water supplies. The Inquiry concluded there were issues with the provisions in the Drinking Water NES, which had limited their effectiveness and highlighted the following issues.

- The regulations are difficult to interpret and apply, and require RMA decision-makers to have a detailed understanding of drinking water treatment processes, hydrology, and contaminant transport behaviour.
- The scope of the regulations is insufficient, and does not adequately address the range of activities that pose a risk to drinking water sources or provide adequate protection for water supplies serving less than 500 people.
- There is a lack of information, guidance and communication protocols to support the effective implementation of the regulations by local authorities, and ensure that risks to drinking water sources are addressed proactively.

The Inquiry's findings provide further evidence the Drinking Water NES has not achieved its intended outcomes, and this is largely the result of the narrow scope of the regulations and the challenges associated with its effective implementation by local authorities.

## Summary of findings of phase 2

Phase 2 of the review assessed the extent to which the Drinking Water NES has achieved its intended outcomes and whether it remains fit for purpose, based on an assessment of changes to drinking water quality from 2005 and the presence of controls on activities in drinking water catchments. Phase 2 also considered the findings of the Inquiry into Havelock North Drinking Water.

Based on this information, the review found the Drinking Water NES has had limited success in achieving its intended outcomes of reducing the risk of contamination of drinking water supplies. The introduction of the Drinking Water NES has resulted in regional councils considering risks of contamination in certain RMA decisions. Available evidence suggests, however, that the Drinking Water NES has not had any discernible impact on the concentration of contaminants in drinking water supplies, largely due to narrow scope of regulations 7, 8 and

10. The findings of the Government Inquiry into Havelock North Drinking Water provide further support for this contention.

Achieving the intended outcomes would require regional councils and territorial authorities to apply the Drinking Water NES to a wider range of activities than stipulated in the regulations, including activities consented before June 2008. This suggests the regulations are not fit for purpose, as they would require significant amendments to achieve the intended outcomes.

# Conclusions

The Drinking Water NES, introduced in 2007, imposed requirements on regional councils and territorial authorities when making certain planning and consenting decisions under the RMA that could affect the quality of drinking water. These regulations were introduced to reduce the likelihood that water bodies used for community drinking water supply contain contaminants adversely affecting the safety and wholesomeness of a drinking water supply.

The review of the Drinking Water NES assessed the implementation of the regulations by councils and evaluated the effectiveness of the regulations in achieving the intended outcomes.

Overall, the review found a need to improve the current practices of many regional councils in regards to managing risks to drinking water sources. A key issue identified was insufficient monitoring of changes to drinking water quality before treatment, which is critically important for informing applicable RMA decisions.

In regards to the implementation and effectiveness of the Drinking Water NES the review found that:

- the level of implementation of the Drinking Water NES in consenting decisions and regional plans is variable across the country, and many councils do not have an appropriate methodology for identifying applicable consented and permitted activities that fall within the scope of regulations 7, 8, 10 and 12
- while this variation does not indicate councils are not observing the Drinking Water NES, the regulations are not promoting consistency in RMA decision-making for activities that pose a risk of contamination of community drinking water supplies
- the introduction of the Drinking Water NES resulted in regional councils considering risks of contamination in certain RMA decisions as intended. Available evidence suggests, however, that this has not had any discernible impact on the concentration of contaminants in drinking water supplies, largely due to the narrow scope of regulations 7, 8 and 10
- achieving the intended outcomes of the Drinking Water NES would require councils to apply regulations 7, 8 and 10 to a wider range of activities, including activities consented prior to 2008, which suggests that the regulations are not fit for purpose.

The findings and evidence gathered in the review of the Drinking Water NES are consistent with the findings of the Government Inquiry into Havelock North Drinking Water. This indicates that the issues identified by the Inquiry are not confined to Hawke's Bay and water supplies in other regions may also be exposed to a risk of contamination.

To improve the effectiveness of the Drinking Water NES the Inquiry recommended many specific changes to the regulations, including:

- using source protection zones to define the spatial area to which the regulations apply
- extending the scope of the regulations so they apply to:
  - land-use activities that pose a risk to drinking water sources, including activities governed by district plans
  - registered drinking water supplies serving 25 or more people

- requiring regional councils to inform drinking water suppliers and local health authorities of any consent applications with a potential to pose a risk to drinking water sources
- redrafting the regulations so they are easier to interpret and apply.

The Government is considering these recommendations, along with the findings of the review of the Drinking Water NES, as part of a system-wide review of the drinking water regulatory framework in New Zealand.

Further information is available on the Ministry of Health's [website](#). .

# References

Aqualinc Research Ltd, 2018, *Water Source Protection Zones: Delineation methodology and potential impacts of national implementation*, Report prepared for the Ministry for the Environment.

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