

21 July 2017

Government Inquiry into Havelock North Drinking Water  
c/- Department of Internal Affairs  
[havelocknorth.water@dia.govt.nz](mailto:havelocknorth.water@dia.govt.nz)

**Submission on Government Inquiry into Havelock North Drinking-Water (Stage 2 issues)**

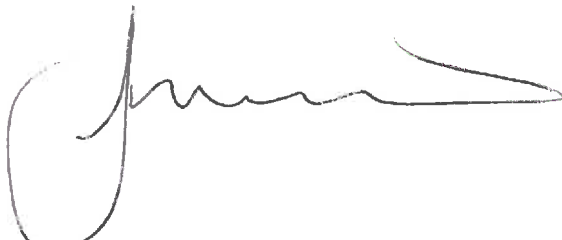
Thank you for the opportunity for Auckland Regional Public Health Service (ARPHS) to provide a submission to the Government Inquiry into the Havelock North drinking-water Stage 2 issues (to be dealt with at the August 2017 hearing).

The following submission represents the views of ARPHS and does not necessarily reflect the views of the three District Health Boards it serves. Please refer to Appendix 1 for more information on ARPHS.

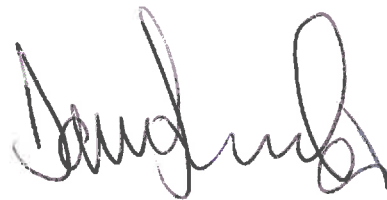
The primary contact point for this submission is:

Andrew Phillipps  
Senior Policy Analyst  
Auckland Regional Public Health Service  
09 623 4600 (ext. 27105)  
[aphillipps@adhb.govt.nz](mailto:aphillipps@adhb.govt.nz)

Yours sincerely,



Jane McEntee  
General Manager  
Auckland Regional Public Health Service



Dr. David Sinclair  
Medical Officer of Health  
Auckland Regional Public Health Service



## **Auckland Regional Public Health Service perspectives**

Auckland Regional Public Health Service (ARPHS) is responsible for the Drinking Water Assessment Unit (DWAU) for Waitemata, Auckland and Counties-Manukau Health districts. This covers the Auckland Council's region as well as the northern parts of the Hauraki and Waikato Districts.

ARPHS employs Drinking Water Assessors (DWAs) and Designated Officers, whose responsibilities include ensuring that drinking water provisions of the Health Act are complied with across the above-mentioned region. ARPHS has a health protection/technical officer workforce made up of 21 staff of which we currently have seven accredited DWAs, one designated DWA and one DWA trainee. Furthermore, our environmental health team has an administrator that fulfils the requirements of the quality controller for the DWAU Auckland. The service also has an allocated Medical Officer of Health (MOH) that both supports the unit and provides the clinical leadership in this area.

ARPHS's DWAU assesses water supply compliance with the Health Act 1956 and Drinking Water Standards New Zealand (DWSNZ). The DWAU carries out water safety plan (WSP) assessments, provides advice and information on drinking water supplies, investigates public health problems arising from drinking water, responds to drinking water transgressions, maintains a drinking water monitoring and surveillance system (WINZ), and promotes public knowledge on drinking water safety and quality.

The Auckland region is in the relatively advantaged situation of having one large drinking-water supplier, Watercare Services Ltd (WSL). Around 1.4 million Aucklanders receive treated drinking water from WSL whose responsibility is for the collection, treatment and distribution of reticulated potable water in the Auckland region.

An important distinction between Havelock North and Auckland is that water sourced from Auckland's bores that are managed under WSL, undergoes treatment, including UV, filtration, and/or disinfection with chlorine to provide free available chlorine (FAC) residual in the drinking water. Treatment is provided in Auckland regardless of whether the bore has obtained secure status or not.

WSL is a Council Controlled Organisation (CCO) fully owned by Auckland Council. It has a number of characteristics which make it a useful example for comparison with other parts of the country, including:

- (1) Its level of independence as a CCO from Auckland Council, which means that WSL is primarily focused on its core business of water supplies and waste water management. WSL is therefore less vulnerable than council-owned water supplies, which are operated as part of council services and therefore open to political interference, or council processes which give low priority to providing quality water supplies (e.g. infrastructure and operational compromises, as exemplified in Havelock North);
- (2) WSL does not return a dividend to the council, but is required to cover its operational and capital costs from revenue and borrowing. Funds cannot be diverted from water supply and waste water management into other council priorities;

- (3) WSL gives a high organisational priority to meeting the DWSNZ, and is managed and operated by people with experience in drinking water and waste water services, rather than by generic managers with other responsibilities.

In addition, Veolia Water Ltd operates as a drinking water network supplier to the former Papakura District.

Overall ARPHS considers that the drinking water supply situation in Auckland has improved since council amalgamation and the formation of WSL.

Of particular relevance to the Commission of Inquiry is the improvement in the former Franklin District. The Franklin District Council operated water supplies to Pukekohe and neighbouring towns from groundwater bore sources in agriculture and horticulture areas. At various times, the Council's approach was to attempt to gain secure ground water status for its supplies, despite some of the sources being at best marginal on hydro-geological criteria and microbiological quality. Achieving "secure" status would have reduced monitoring costs and allowed untreated water to be supplied (neglecting, of course, the contamination risks with storage and the distribution network). Since council amalgamation and WSL taking over these supplies, the approach has changed, with WSL accepting that these sources are unlikely to be secure, and installing adequate treatment as well as upgrading supplies and infrastructure. A large water CCO such as WSL has the organisational orientation and resources to do this, whereas the small district council always seemed to struggle with water supplies, especially where substantial funding for infrastructure and operational upgrading was needed to meet DWSNZ requirements.

Some recent incidents in the Auckland region have highlighted the need for continuing active management of drinking water quality systems. Of note are the following:

- The major storm in March 2017, which severely affected source water quality in the storage lakes in the Hunua ranges and reduced production capacity at the Ardmore water treatment plant. Water from two of the lakes received very high sediment load, from run-off in the catchment. One potential source was recently felled production forest land. The Ministry for Primary Industries has recently been consulting on a proposed National Environmental Standard for forest harvesting, which needs to consider potential impacts on drinking water sources.
- Faecal contamination of the water supply for two adjacent schools on Waiheke Island, which services nearly 1000 pupils. The contamination was identified by periodic testing by one of the schools, which found high *E coli* levels. Contamination was likely caused by infiltration of effluent from one school's on-site wastewater treatment system into cracks in the drinking water storage tanks and/or distribution system. This incident has led to substantial disruption to school, including prolonged closure of the school dental clinic, but did not result in an outbreak of disease. A major problem highlighted in this situation is that the school supply is classified as a "self-supply for community purpose", and while the supply is registered, it is not subject to the same requirements for monitoring and audit by the DWAU as a comparably sized public supply; rather the supply was the responsibility of the school boards. The schools, ARPHS and the Ministry of Education have been involved in resolving this situation, but responsibilities of each agency were not understood by all, and needed to be established initially. As noted below, there are a substantial number of these "self-supplies for community purposes" around the country, and DWAU's often only become aware of microbiological transgressions at the time of the annual drinking water survey. These are high risk

situations which are not adequately covered under the existing regulatory arrangements.

The remainder of this submission addresses the specific Stage Two issues and questions raised by the Inquiry. ARPHS's responses have been prepared in consultation with its DWAU.

### **Issue 3: Drinking-water safety and compliance levels in New Zealand**

- b) *Compliance and safety levels applicable to bacteriological and protozoa safety to be included*

ARPHS supports substantial updating of the DWSNZ, and regulatory and guidance framework. However, the core aims of microbiological protection (bacterial and protozoal) are sound.

- c) *What evidence is there of trends of improvement and deterioration?*

As noted above, ARPHS considers the structural arrangements in Auckland to be a definite improvement over those under the previous local government structures. Inevitably this potentially creates other issues, such as the capacity with which ARPHS's DWAU needs to understand the complexity of Auckland's drinking water system in order to adequately audit WSL's performance.

- d) *How do types and frequencies of contamination compare with similar countries?*

ARPHS does not have specific information on this topic.

- e) *What information is available on causes of waterborne illnesses?*

A collaboration between Institute of Environmental Science and Research (ESR) (as the main surveillance provider) and public health units is needed to trigger and investigate causes of water borne illnesses, and any investigation needs to be informed by supporting national\* and international research. The ESR system (EpiSurv) provides a sound base for public health surveillance.

\*Supporting information examples:

Research based:

<https://www.health.govt.nz/system/files/documents/publications/water-borne-disease-burden-prelim-report-feb07-v2.pdf>

Surveillance based:

[https://surv.esr.cri.nz/PDF\\_surveillance/NZPHSR/2017/NZPHSRJune2017.pdf](https://surv.esr.cri.nz/PDF_surveillance/NZPHSR/2017/NZPHSRJune2017.pdf)

Taking a broader view to question e) (i.e. considering what needs to be in place to gather information in the first place), there needs to be collaboration between organisations so that continued improvement of methods of surveillance, epidemiological studies, and advanced methods of diagnosis continue to be developed. This will allow detection of new pathogenic species of micro-organism, or to associate a known micro-organism with a new or atypical set of disease symptoms. Furthermore, the agents of several diseases that were thought to

have been controlled are re-emerging as a result of adaptive changes in the pathogen, changes to the immunological status of the host, or environmental, demographic and socio-economic changes. These incidences are increasing as a result of long-term changes in their underlying epidemiology<sup>1</sup>. 175 species of infectious agent from 96 different genera are classified as emerging pathogens. Of this group, 75% are zoonotic species. Each of these pathogens represents a public health problem.

As the WHO ([http://www.who.int/water\\_sanitation\\_health/emerging/emerging.pdf](http://www.who.int/water_sanitation_health/emerging/emerging.pdf)) p.7 states:

*“Developments in our understanding of the relationships between water and human health have been characterized by the periodic recognition of previously unknown pathogens or of the water-related significance of recognised pathogens. Several studies have confirmed that water-related diseases not only remain a leading cause of morbidity and mortality worldwide, but that the spectrum of disease is expanding and the incidence of many water-related microbial diseases is increasing.”*

### **High Level Issues**

#### **Issue 4: Should the “secure” category in DWSNZ 4.5 and definitions remain?**

- a) Is the concept of “secure” water supply (which does not need to be treated) acceptable? What difficulties or deficiencies exist in the current basic concept of a secure supply?

The current application of ‘secure’ water supply is difficult to assess because the term secure only refers to bore source water. The process of the water being pumped and distributed for use presents several critical control factors such as, lack of chlorine treatment, no FAC residual in the distribution system, and potential contamination, leakage or backflow issues etc.

In saying that, further consideration is required to ensure that assessment of shallow bores and bores that have the potential to be contaminated is strengthened.

There is an over-reliance in practice on water testing results in establishing bore water security (especially in shallow or unconfined aquifers), which does not adequately address the fluctuating risk of contamination. For example, if no testing is done after heavy rain events intermittent contamination will be missed; and hydro-geological and catchment considerations or changes in land use (including matters controlled under the NES), which should weigh against secure status, may be down-played. A number of councils (see above for an example) appear to take a permissive interpretation of section 4.5 of the DWSNZ i.e. regarding ground water as secure until proved otherwise.

We recommend that the concept of a ‘secure’ bore status be revised, taking into account the following:

- greater emphasis on catchment and hydro-geological assessment.
- bore depth and the ability for suppliers to address potential risks of contamination, and;

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<sup>1</sup> Woolhouse MEJ (2002). Population biology of emerging and re-emerging pathogens. *Trends in Microbiology*, 10, No. 10 (Suppl.): S3–S7.

- undertaking reassessments more frequently than every five years, especially if there are changes in land use.

With urban and agricultural intensification, many bores previously considered 'secure', may no longer achieve secure status. However, the DWSNZ only requires the full chemical and radiologic analysis of the source water to be reviewed every five years. ARPHS recommends that this review period be reduced. In addition, treatment provides cover for any change in circumstances that may affect the quality of the drinking water.

It is impractical to provide standards/guidelines that cater for every possible scenario that might affect bore water security. In the end it is up to the DWA/supplier to appropriately apply the provisions of section 4.5. Therefore, the provisions in section 4.5 of the DWSNZ should seek to provide a risk assessment framework that is logical and easy to understand. For instance, the inclusion of an algorithm might be useful.

- b) What difficulties or deficiencies exist in the criteria for security currently in DWSNZ 4.5?

See comments above.

- c) If divorced from the question of treating water, is there still a legitimate role for classifying water as "secure"?

We understand question c) to read ...is there still a legitimate role for classifying bore water as "secure"? We do not consider the water supply (post abstraction of raw water), or drinking-water in general, should ever be considered secure. However, we believe there is a legitimate role for classifying 'source' water from confined aquifers as "secure", provided that the associated bore fully complies with section 4.5, and there is a high degree of protection of the aquifer under the Resource Management (National Environmental Standard for Sources of Human Drinking Water) Regulations 2007 (NES).

- d) Is there a role for the "secure" rating in respect of smaller supplies which may not be treated to the same level as large or medium supplies?

While the same assessment criteria should be applied to all public water supplies and specified self-suppliers (e.g. schools, early childhood centres, community halls), the ability of the supplier to maintain a secure status needs to be considered. In addition, it should be compulsory for all of these smaller supplies to be treated.

- e) If the classification as "secure" remains acceptable, should the criteria for security be changed or added to; can they be substantially simplified?

While it should be relatively straight forward for a confined aquifer with a deep and impermeable confining structure and low risk catchment which is well-protected under the NES to be classified as secure, the reverse should apply to unconfined aquifers, especially those with shallow, intermittent, or permeable structures and higher risk catchments. The five metre animal exclusion zone is grossly inadequate.

- f) If the classification is to remain, who is to confer secure status and also downgrade status when needed?

The Drinking Water Assessor.

- g) Does water age testing have a useful role in classifying bore water; if so, what. Are there risks of over-reliance on water aging?

Yes, water age testing does have a useful role in classifying bore water as safe. Ongoing water age testing allows the geological profile of a bore (and associated aquifer) to be monitored overtime and allows future trends to be predicted.

Obviously water age testing should not detract from an evaluation and risk assessment of the chemical and physical properties of the bore water. The 1 year age criterion may not be adequate.

#### **Issue 5: Should all drinking water be treated?**

- a) What are the arguments in favour of mandatory treatment of all drinking water?

All people have the right to access safe potable drinking water.

Members of the general public in New Zealand have various levels of understanding about the water treatment process, but the general expectation is that drinking water in New Zealand is 'potable at the tap'. The most secure way of meeting this objective is by treating all drinking water, at all times, without exception.

Applying treatment to drinking water supplies is consistent with section 69W of the Health Act, which states every drinking-water supplier must take reasonable steps to ensure that the drinking water supplied is wholesome. However, there is variable ability and willingness between suppliers, especially in smaller districts, to fund, develop, maintain and operate drinking water infrastructure and systems. We note the reluctance (and in some cases opposition) of some parts of the local government sector to support and implement part 2A of the Health Act and DWSNZ.

New Zealand has an international reputation for providing potable tap water. Contamination incidents have the potential to devalue New Zealand's 'clean, green image'.

- c) How should treatment be mandated? (Health Act, DWSNZ, other)?

Treatment should be mandated through the amended Health Act and DWSNZ. The Act and any regulations need to have clear criteria for mandating treatment (e.g. population).

- d) Should the need to treat water be determined on grounds other than the existing "secure" classification; If so, on what grounds?

Yes, as mentioned in other questions, there are other contamination risks throughout the reticulation.

- e) If the default position is that drinking water should be treated, what exceptions or carve-outs (if any) should exist; Should any mandating of treatment apply to supplies of only certain types or sizes?

Mandatory treatment should apply to all public water supplies i.e. all network supplies and self-supplies with a community purpose e.g. community halls, shopping malls with drinking water fountains, government premises, educational institutions (such as schools, early



childhood centres), hospitals, and recreational facilities (ski fields, zoos, amusement parks). "Treatment" will need to be clearly defined to cater for the different types of water supply systems. There are various water treatment methods available, and the level of treatment provided will be determined by the nature of the source water, distribution system, and operational procedures.

- f) Should all network supplies include a residual disinfectant to provide a barrier against contamination post source/treatment?

Yes, all network supplies, as well as self-supplies with a community purpose, should include a residual disinfectant to provide a barrier against contamination. Contamination can occur for a multitude of reasons, and at multiple points within a network (i.e. storage tank contamination, contamination resulting from distribution system maintenance etc. Refer above for Waiheke schools situation). Chlorination is a safe way to protect drinking water supplies from contamination against harmful micro-organisms, and it is simple to use, and inexpensive.

#### **Issue 6: Treatments of drinking water**

- a) Is there a need to change or review the DWSNZ regulation and prescription of treatments; should the DWS address the minimum type and level of treatment required for various sources?

Yes, there is need to review the DWSNZ regulation/standards as they have not been reviewed for a significant period of time (nearly 10 years). Treatment types have changed significantly over this period. As an example, we are now aware that WSL utilises a mobile ozone disinfection plant to disinfect the water, after undertaking network repairs, and before placing the source online again.

- b) Is there adequate provision for reviewing the treatment provisions in the DWSNZ periodically? See 19 c below.

Review of the DWSNZ and drinking water management framework depends largely on the capacity and operational priorities of the Ministry of Health (MoH). This does not necessarily facilitate timely review. Having a national working group, perhaps facilitated by ESR, may result in more timely revisions.

The time required for consultation and implementation in the Act can delay necessary change or may leave updated methods and technologies outside the DWSNZ.

- c) (If not required by regulation) who should make the decision whether to treat or not, and what treatment to apply?

Other than the water suppliers, the MOH (who will be informed by DWAs). The Act already provides for this through the applications of sections 69ZA and 69ZZH. For example, if the MOH determines that the risks have not been mitigated, then they can use the WSP approval process to require the water supplier to implement appropriate treatment. In the event that the water supplier does not heed this advice, then the MOH can issue a compliance order under section 69ZZH(1) if they determine that there is a risk to public health.

However, issuing compliance orders rarely happens. Please see our comments under question 12d).

- d) Should there be further regulation of treatment plants or methods; Should expert engineering certification be required?

Details of further regulation and certification would need to be worked through thoroughly. While there is cost involved, if regulation can simplify and clarify requirements for suppliers, they should be considered.

- e) Should treatment plant performance be regulated; should specified records be kept?

Record keeping is, to some extent, covered under section 69ZD of the Act.

#### **Issue 7: Should there be a dedicated drinking water supply entity or entities**

- a) What options exist for the management and delivery of drinking water; benefits of existing models?

The model of WSL working with the DWAU-Auckland has been proven to be a successful one. A sound working relationship exists between both parties. More specifically, the following practices have been done for years:

- Checks quarterly. DWAU-Auckland may provide feedback or suggestions to WSL if any issues are identified following the data review.
- Both parties keep the other side informed through regular meetings, involving both DWAs and the portfolio MOH. Auckland Council staff regularly attend these meetings to discuss emerging issues (i.e., heavy rain events caused supply shortage of source water at Ardmore WTP in March 2017) and consider practicable solutions in a timely manner;
- Regular catch-ups allow for the frequent re-visiting of necessary treatment levels for protozoa compliance.
- All transgression incidents, bacteriological or chemical, are immediately notified to DWAU-Auckland.
- Adequate information exchange enables DWAU-Auckland to provide accurate and/or appropriate advice or recommendations.
- Carrying out annual public health grading of the water supply seems to have mutual benefits for both parties, ultimately benefiting the general public. Public health grading also provides the water supplier with an opportunity to undertake catchment sanitary surveys where required or due.

- b) Arguments in favour of, or against, a dedicated supply entity; is there a role for such an entity in the case of a single supplier or only on a joint basis for several suppliers?

Some of the advantages of large scale water supply CCOs that are focused on water supply and relatively independent of council political priorities are mentioned above. Having

regional-level water supply organisations should support critical mass of competence and capacity, and the scale of investment needed.

- c) What role could or should such an entity have; what gambit of activities should it have?

See above for ARPHS's comment on WSL's structure.

- d) What governance and structure should it have?

See above for ARPHS's comment on WSL's structure

- e) What accountability would such an entity have; to whom?

Inevitably there would be several lines of accountability – to the board for governance and organisational performance (hence to the owning council(s)), but also to the DWAU for water quality and risk management.

- f) Consider success or otherwise of examples of dedicated supply entities including Watercare and Wellington Water and, if useful, overseas entities

See above for ARPHS's comment on WSL's structure. The option of community drinking water supplies being owned and operated by regional CCOs jointly owned by councils needs to be considered seriously. Small councils are often not in a position to adequately fund the large resources needed to tackle the backlog of infrastructure and operational upgrades.

### ***Operational***

#### **Issue 8: NES Regulations**

- a) Does the nature and extent of regional councils' responsibility for drinking water need to be reviewed/extended?

Yes. The Havelock North incident highlighted the inadequacy of the Hawkes Bay regional council's implementation of the NES. It is unlikely to be the only regional council in that situation.

- b) If so, are the NES Regulations the appropriate vehicle for achieving that?

In general, yes. Water allocation and catchment management are topics managed under the Resource Management Act (RMA), so the NES regulations are an appropriate component for managing the interface with the Health Act and DWSNZ. However, the roles and responsibilities of each agency (regional council in catchment management and allocation; territorial authority in extraction, supply and distribution; and DWAU in audit and regulation etc.), and how they should interact, needs to be clearly understood by all agencies. This seems to be understood to varying degrees around the country.

- c) Issues arising out of the application of the NES in practice; have the NES Regulations served their intended purpose?

In the Auckland region, the main water sources are in protected catchments (Hunua and Waitakere ranges), so management is less complicated than in some other regions. However, there have been issues in some open surface water catchment supplies where

there has been low level agri-chemical contamination (below maximum acceptable values (MAV)) from agricultural and forestry activities, which are not covered well under the NES (e.g. agricultural use as a permitted activity).

Historic and cumulative effects of extraction, discharges and contamination need to be included in the NES, e.g. issues of nitrate contamination of ground water sources.

d) What should be the scope and effect of the NES Regulations; are they too narrowly cast?

Following from the previous paragraph, consideration should be given to updating the NES to better handle agricultural and nitrate topics.

e) Is the current trigger for engagement of NES protections (activity likely to affect water in specified ways) workable and appropriate; should it be replaced, or complimented by a spatial criterion such as the stipulation of a "source protection zone"? [ see 10 f below re delineation of "catchment"]

We have not had to deal with specific situations related to application of the NES recently, so have limited ability to comment on this and the next group of questions.

l) Is there sufficient awareness of the NES Regulations by regional and district councils; if not what steps by MfE or others should be taken?

Awareness of the NES by regional councils, district councils and DWAUs is likely to be variable, emphasising the need for regular and detailed liaison between agencies. We support the comments and recommendations from Canterbury District Health Board.

n) Role of collaboration/consultation/monitoring in relation to NES Regulations; do these need to be regulated. Relationship between s69U Health Act and regional councils' responsibilities?

Collaboration etc. is essential, and needs to be developed and maintained. The regulatory overlap is useful for ensuring that agencies are aware of the overlapping responsibilities.

ARPHS concurs with the recent analysis by the Environmental Defence Society (EDS) demonstrating the inadequacy of consent conditions and environmental monitoring by consent authorities, which imposes significant risks on fresh water resources, including drinking water sources<sup>2</sup>.

#### Issue 9: Consenting by Regional Council

e) Should Regional Councils notify the DHB and DWAs of all resource consent applications with the potential to impact upon drinking water sources?

Yes. This should also extend to relevant resource consent applications to territorial authorities.

DWAs and DHBs should have the opportunity to comment on any application that has the potential to have an impact on a drinking water source, whether to a regional council,

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<sup>2</sup> <http://www.eds.org.nz/our-work/publications/books/last-line-of-defence>

territorial authority, or unitary council. Advice from DWAs could potentially assist the decision making authority on how the NES should be applied in a particular context.

Involvement in these types of consent applications will also help DWAs to:

- understand where the source water is coming from.
- review the relevant water quality monitoring test results.
- gather some background information about the water source, such as historical issues, and water discharges.
- view the issues from a Maori perspective, and;
- provide DWAs with up-to-date knowledge that allows them to respond better in an emergency.

In summary, DWA involvement in relevant consent applications will also help to maintain a relationship between DWAs and a key player in the drinking water regulatory environment.

As an example, the Waikato River as a water source receives pollutants from farm land, urban land use activities, and forestry. All of these activities are regulated by council bodies. However, it is worth knowing about the effects of activities that not only require consent, but also result in permitted discharges. Receiving certificates of compliance could be useful. This information would assist DWAs to make more informed decisions about what level of treatment is required.

#### **Issue 10: Regional Councils' approach to first barrier protection for drinking water -other than under NES Regulations**

a) **Should first barrier protection be accorded greater recognition and endorsement?**

ARPHS would support this in principle, given the variable application of the NES and findings from the Inquiry.

b) **Should regional councils have responsibilities for drinking water in addition to those in the NES Regulations?**

Yes, regional councils should be responsible for collaborating and consulting with other relevant parties in the drinking water supply system. Regional councils should be responsible for developing catchment protection plans in consultation with the drinking water entity/supplier. This will allow drinking entities/suppliers to know how the surrounding physical and natural environment may impact their water sources, allowing any potential risks to be appropriately managed.

In general, stakeholder collaboration is the key to protect drinking water sources. In accordance with section 69U of the Act, every WSP should contain provisions that cover water source protection. Water suppliers should be working closely with regional councils, and have the opportunity to input into the conditions of relevant consent applications.

- c) Should the current indirect or co-incidental responsibility under the RMA be made more direct in respect of drinking water (this will overlap with the NES Regs issues, but may not be limited to the NES Regs regime)?

ARPHS would support this in principle, given the variable application of the NES and findings from the Inquiry.

- d) Should regional councils' responsibility for the protection of drinking water sources extend to collaboration and consultation with other relevant parties in the drinking water supply system?

ARPHS would support this in principle, given the variable application of the NES and findings from the Inquiry.

- e) Should the regulatory regime provide for a catchment protection plan and, if so, how should such a plan be prepared and administered?

ARPHS would support this in principle, given the variable application of the NES and findings from the Inquiry.

- g) Should any changes be made to regional councils' knowledge and management of potentially risky bores and other risk activities in the catchment area?

Yes. This was a significant deficit identified in Part 1 of the inquiry, and consistent with public health units' experience around the country. The joint knowledge and understanding between regional councils, territorial authorities and public health units should be improved by better liaison and joint commitment to improving drinking water management.

- h) Is it sufficient that regional councils' knowledge and management is carried out through their SOE monitoring or is more specific action required?

No. As noted above, the EDS analysis of consent and environmental monitoring identified serious deficiencies which need correction.

- i) Are any changes desirable in relation to the involvement of, and responsibility by, the Ministry for the Environment in respect of drinking water?

MfE's role in relation to protection of drinking water sources up to the point of extraction is vital, as is its linkage with the MoH. This needs to be acknowledged in the strategic planning for each ministry.

- j) Should there be greater guidance and/or education of regional councils in respect of their role in drinking water?

ARPHS would support this in principle, given the variable application of the NES and findings from the Inquiry.

## **Issue 11: DW Suppliers**

### **General comment**

In general ARPHS supports the principles included in the questions in issue 11. This is a complicated topic which will need detailed working through of options.

### Issue 12: DWAs

- a) What issues, if any, exist in relation to DWAs' employment by and role within a DHB; should DWAs be managed and constituted outside the DHB?

The specialised DWA role complements the wider work carried out by health protection officers (HPOs), such as, disease investigation. Environmental public health matters often require a holistic approach, requiring the blending of information and knowledge from DWAs and HPOs. Therefore, DWAs are best placed within public health units.

However, public health units across the country need to be better supported to functionally allow DWAs to focus on the roles and responsibilities of their designation, through having a defined position description. Through improved funding and business planning, public health units will be able to employ the appropriate DWA and HPO capacity in line with the populations they serve.

- c) Should the present informal amalgamated units (e.g. CNIDWAU) be formalised/extended?

An informal amalgamation of some North Island DWAUs could be beneficial. However, only if it serves a purpose with regards to:

- requirements of the National Technical Manual (NTM)
- efficiency gains for International Accredited New Zealand (IANZ) and individual signatories competencies
- fostering and enhancing relationships between local agencies
- enhances ownership, accountability and responsibilities

Benefits of informal amalgamation include the incentive to have frequent teleconferences (e.g. such as SIDWAU monthly teleconferences) that facilitates training to occur across different units, and discussion of DWA matters and experiences.

- d) What national oversight and co-ordination exists; what should there be?

Both the MoH and the National Co-ordination Team (NCT) provide ongoing support for DWAs. However, there is a need for the MoH to provide a clear direction with regards to the application of the Act to protect public safety, requiring compliance and providing national leadership to local DWAUs.

- e) Is there a need for greater consistency in DWA work across NZ?

There should be national consistency in DWA work. Presently, IANZ is responsible for auditing DWAs to ensure competencies are maintained to the required standard. IANZ reviews each DWA on a three yearly basis for signatory scope activities, and Drinking Water Units are assessed every year.

ARPHS encourages more focused training for DWAs and MOHs that includes practical tests simulating real life experiences. DWAs need to have more opportunities to share their experiences and form discussions.

i) **To whom should DWAs be accountable?**

Through their public health unit/DHB (their employer) to the Director General (MoH) - as set out in section 69ZM of the Act.

j) **Are any changes needed to section 69ZL Health Act?**

ARPHS considers that no changes are needed to Section 69ZL and it should remain as it is.

k) **What resources should DWAs have; are DWAs appropriately supported in the exercise of their statutory duties?**

DWAs currently have many resources and references to guide their work including the technical and administration manuals, the drinking water guidelines and legislation. However, in saying that, the Technical Manual and the MoH resources need to be reviewed immediately e.g. the Water Carrier Guidelines.

DWAs require further support including a structured on-going competency training framework, and an improved understanding of the depth and types of technical and engineering support.

l) **Should DWAs have greater or different enforcement powers?**

DWA powers under section 69ZP of the Act appear to be adequate. However, we would like to take this opportunity to seek further clarification around the DWAs discretion when applying the concept of leniency. We recommend that application of leniency is formally placed in an ongoing training and competency workshop to ensure consistency across DWAs and MOHs, and provide greater direction on the issue of "leniency".

m) **Is there need for any change in the approach of DWAs to DWSNZ compliance assessment?**

Please refer to our answer(s) in questions 12(d) and 12(l).

n) **Should the DWA practices in relation to WSPs and ERPs be changed?**

Emergency Response Plans (ERPs) should be included as part of the WSP, or at least as a supporting document.

o) **Does the National Drinking Water Assessors Technical Manual (CB54) need revision?**

Yes, there is a need for revision. For example, a national Class 2 approval procedure for tankered water carriers has not been developed, as promised.

p) **Is any change needed to the enforcement by DWAs of s69ZD obligations (records)?**

Section 69ZD (a) can be problematic. The water supplier may use this section and claim that records do not contain sufficient information for the DWA's assessment to happen. We suggest that further guidance is needed on how this relates to the DWSNZ, and the provision of records by suppliers.



- q) Should trained professionals from international jurisdictions be able to be recruited as DWAs to address DWA under supply?

The MoH only uses Opus International Consultants as the DWA training provider in New Zealand. The MoH also recognises trained international professionals (with relevant first degree) in regards to the HPO competencies after further training within the New Zealand context e.g. Graduate Diploma of Environmental Health. We suggest that this could be extended to DWA recruitment, providing the individual has a public health background, related degree, and relevant overseas experience. This could be followed by further familiarisation and mentoring in the New Zealand legislative framework.

- r) Should demonstrating compliance with s69ZZZ (protection against backflow) be included in the annual assessment of compliance with DWSNZ?

Without question, Section 69ZZZ should be included in annual compliance but the language needs to be more authoritative by removing language such as 'The supplier may' and 'if the suppliers consider' etc. Regarding subsection (1), backflow prevention should be mandatory, rather than the onus being on the water supplier to make a decision.

### **Issue 13: Roles of agencies in relation to drinking water**

- a) Should there be a single drinking water regulator?

There are advantages and disadvantages regarding a possible single regulator.

There would be distinct advantages of clear focus and mandate, national consistency, critical mass of expertise etc. The agency would need to have clear roles and responsibilities in audit, investigation, laboratory services and surveillance, providing technical advice, and as a regulator. It would need clear and effective authority to act independently.

However, there are potential disadvantages to centralisation, including loss of local knowledge and relationships, and loss of the connection with public health services which undertake communicable disease surveillance and investigation.

An alternative option would be formal links between DWAs at a regional and supra-regional level, such as what operates in the central North Island.

- b) Is there a problem with fragmentation of responsibility between agencies for drinking water?

Drinking water management in New Zealand has various agencies involved to ensure its wholesome status for communities. ARPHS believes strong relationships between agencies and frequent communication is pertinent to ensuring the appropriate management of drinking water. ARPHS appreciates that there could sometimes be difficulties in a response to an event where agencies are not clear about roles and responsibilities. Having formal standard operating procedures or memorandum of understandings would support DWAs and other agencies. Wide consultation would be required for the development of these documents.

- c) Are the resources applied by DHBs to drinking water adequate?

Please refer to our response in question 12a).

d) Are the resources applied by MOH to drinking water adequate?

Please refer to our response in question 12e).

e) Is there a need for clarification and/or guidance in relation to the roles and responsibilities of various agencies?

Yes. For example, ARPMS was recently notified of E.coli presence in the water supply for two schools on Waiheke Island. ARPMS was initially identified as the agency responsible for managing the incident. However, once clarity on roles and responsibilities was established, it was agreed that the Education Review Office is responsible for assessing school compliance with Ministry of Education requirements.

ARPMS's role is to provide information and advice to these schools (as it does to other rural schools), and has done this over a number of years as part of the annual drinking water survey.

In 2011 ARPMS organised a seminar at the school and several reminders were sent to the schools about developing a Water Safety Plan. However, the responsibility of drinking water safety ultimately lies with the Ministry of Education.

It would be beneficial for all parties involved to be clear on the roles and responsibilities in relation to self-suppliers, particularly those that are currently outside the jurisdiction of the Health Act.

ARPMS does accept that where possible, the least coercive option, or combination of options, that achieves the objective, should be adopted

#### **Issue 14: WSP**

##### **General comment**

Adequate provisions and guidelines in relation to the purpose and function of WSPs already exist. Our comments for the questions below are made in this context.

a) What changes, if any, are needed to the identification and assessment of risks in WSPs?

In general, the current WSP regime is adequate, but some improvements are needed. For instance:

- An emergency response plan should be a requirement.
- Sanctions or consequences should follow a failure to implement a WSP. If a water supplier fails to implement any aspect of its WSP, it should have to re-submit the WSP to a DWA for assessment and approval.
- Under section 5 of the 'Scope 3 Procedure Verifying Adequacy of Water Safety Plans' document (which is contained in the Drinking Water Assessors' Scope Procedures and Technical Manual), it is recommended that "water suppliers should be encouraged to review and resubmit their WSP for approval when there have been any major changes to a drinking water supply (e.g. new treatment processes,

new/additional sources)". This needs to be a requirement for all network suppliers and embedded in either the Act or the DWSNZ. In addition, such a requirement should not only apply to a water supplier's internal environment and operation, but should also be triggered when large scale external events or changes to the surrounding environment have the potential to impact drinking water quality.

- b) Should a WSP be part of a supplier's corporate risk management process and also recognised at senior management and governance levels?

Yes, WSPs should be visible to senior management and the elected council so there is adequate long term planning (particularly when considering future equipment and infrastructure requirements), and also to ensure adequate funding and resources are considered publicly.

- d) Is any change needed in the extent to which suppliers devolve WSP responsibilities to consultants?

It needs to be clear that the supplier retains overall responsibility and accountability for the WSP however it chooses to implement it.

- e) Are changes needed to the enforceability of WSP promises or obligations, and the assessment of implementation of WSPs?

The process of assessing WSPs against the DWSNZ is guided by the 'Scope 3 Procedure Verifying Adequacy of Water Safety Plans' document contained in the Drinking Water Assessors' Scope Procedures and Technical Manual. If there are non-conformances identified prior to WSP approval, the DWA will list them in a 'WSP adequacy report', and these need to be corrected before approval. However, for recommendations, which are non-mandatory follow-ups, there is uncertainty around how much pressure the DWA should place on the water supplier to follow up on the recommendation. There is no guidance provided on this matter.

The question is: How persistent shall DWA be with those 'recommendations', or, how much effort should DWA's put into pursuing the recommendations. This often can be dictated by the level of resources available.

- f) What sanctions or consequences should follow a failure to implement a WSP?

This will depend on the seriousness of the failure. Publicising implementation failure by the DWAU/MOH may be an effective means in some situations. Compliance orders may need to be used. However, the current MoH riding instruction for DWAUs to encourage rather than require compliance limits scope for effective local response to inadequate implementation.

Directions by the Director General of Health and writs of mandamus from the Minister are options in serious situations (see Health Act part 7), but have not been used for many years.

- h) Should a ERP be part of a WSP?

ERPs should be required in the WSP.

- i) Are any changes needed to CB158, 159 DWA Manual; should WSPs be prepared according to a template or should they be entirely bespoke?

A template which covers most aspect of the WSP but allows local flexibility should be useful to ensure consistency, and completeness.

j) Are any changes needed to sections 69Z-ZC Health Act?

Ensuring consistency in interpretation between suppliers and DWAUs may be more useful than amendments to the Health Act.

**Issue 15: Monitoring & Testing**

b) Are any changes needed to the reporting and use of test results?

Section 69ZZ of the Health Act requires laboratories to directly forward test results to the Director-General if the result(s) indicate any non-compliance with a MAV set out in the DWSNZ. DWAU-Auckland is aware that laboratories in the Auckland Region are not currently following this requirement. As a result, DWAs asked the MoH during the National DWA training held in Feb-March 2017, to write to all MoH recognised laboratories to alert them to this requirement, and request compliance.

h) Are any changes needed in relation to tankers/water carriers?

All class 2 water carriers should be required to undertake monthly monitoring of their source water, as well as the tankered water.

i) Should a grading system be reinstated; if so, what features should it have? Was the abandonment of a grading system justified?

Grading has never been 'cancelled' and remains operational. DWAU-Auckland carries out annual grading of WSL and Veolia Water as a business decision. It is however no longer a 'Scope item', and therefore is not under the present IANZ accreditation system. A supplier can choose whether or not to grade their supply.

**Issue 16: Laboratories**

a) Should there be greater regulation of laboratories within, instead of separate from, the drinking water regime?

Yes

b) Should laboratories be part of the drinking-water partnerships & collaboration, or are they necessarily a separate element by nature of their function and role?

Due to a perceived conflict of interest, laboratories should ideally be independent of the water supplier(s) or perceived conflicts actively managed. Currently in Auckland, WSL uses its own laboratory for testing, which could be viewed unfavourably by the general public, media etc. However, this is an accredited laboratory which is providing a range of laboratory tests, not only for DWSNZ purposes. The DWAU has a potential role in ensuring independence. Are any changes needed to accreditation, training, certification, registers or other aspects of the regime applicable to water testing laboratories.

d) What level of expertise is needed by water testing laboratories?

Water testing laboratories should achieve and maintain an IANZ accreditation.

- e) Should there be a requirement for larger and better resourced laboratories to service water suppliers, or certain sized water suppliers?; is there a case for a Government-run laboratory or is private sector supply better?; should laboratories be independent of the water supplier(s)?

It is difficult for Auckland DWAs to get samples tested for DWSNZ compliance purposes because there can be issues of samples arriving at the laboratory in Christchurch outside of the 24-hour time limit. As described in chapter 6 of the drinking water guidelines (page 18), this 24-hour time limit is in place as tests performed on samples more than 24 hours old cannot be interpreted with any confidence, as bacterial counts may increase, decrease, or remain the same, over time.

Sometimes it may be impossible to satisfy all the temperature and time requirements so there is an advantage in collecting more than the minimum number specified in the DWSNZ.

There may be some exceptional circumstances where this is not possible, such as sampling remote water supplies where the courier service cannot satisfy the 24-hour requirement. In these circumstances section 4.3.6.1 of the DWSNZ refer readers to section 3.1.1 which states "Special procedures may be authorised in writing by the Ministry for small or remote drinking-water supplies".

In our view, a large growing city like Auckland should have its own government run laboratory.

- g) In the event of a positive result, what reporting obligation should laboratories have?

Laboratories are obligated to report positive results to the Drinking Water Assessment – Unit, as mentioned above in question 15b).

The DWAU finds that a number of positive results are not reported to our unit by various water suppliers, particularly those specified self-suppliers. Furthermore, some water suppliers do not submit positive results to our DWAU when they apply for security bore status.

We only become aware of such positive results when we carry out the annual drinking water survey. We therefore recommend that laboratories requirement under section 69ZZ is enforced.

### **Sundry**

#### **Issue 17: Protozoa risk**

- b) Are current DWSNZ rules for protozoa deficient?

The minimum log credit for surface water, springs and non-secure bore water is currently log credit 3, as per table 5.1b of the DWSNZ. This requirement could be changed for sources where it is hard to detect any *Cryptosporidium* for a set period of time. For example, where the mean of *cryptosporidium* oocysts per 10 litres is 0.06 over 5 years, this could be awarded 2 log credit, instead of 3.

During the response to the storm which affected the Hunua supply lakes in March 2017, WSL assessed the possibility of protozoal testing at the Ardmore water treatment plant after the clarifiers but before the filter beds. This was for the pragmatic reason that the source water was highly turbid from sediment wash off, and testing may have been unreliable as a result. The raw water is normally very low in both giardia and cryptosporidium. This process was not consistent with the detail of the DWSNZ method, but was practical and demonstrated the type of flexibility needed in unusual situations without having to go through an extensive approval process from the DWA and/or MoH.

#### **Issue 18: Boreworks & casings**

d) **Should below-ground bore heads be allowed?**

Below ground bore heads should be discouraged, but could be allowable in some circumstances. For example, below-ground bore heads should not be approved in flood prone areas with inadequate bore head infrastructure; in shallow bores and unconfined aquifers etc.

e) **Is an Asset Management Plan adequate to deal with aging reticulation assets?**

An asset management plan is only useful if it is supported by a long term funding commitment to upgrading infrastructure which is not continually being compromised for short term reasons.

#### ***Regulatory***

#### **Issue 19: Health Act**

a) **Does the regulatory framework need to be strengthened to increase accountability for drinking water safety to the Government and the community; or is the present level of regulation sufficient?**

The regulatory framework needs adjustment, as outlined in submissions from public health units. However, the lack of a national strategy for enforcement would be a higher priority.

The audit and regulatory aspects of the Health Act do not apply to specified self-suppliers, although such suppliers are required to be registered under the Act. We recommend that the provisions in sections 69S to 69ZC be extended to specified self-suppliers.

c) **Is the statutory regime for changing any DWSNZ provisions acceptable? (s69P- need to consult 3 years before any change to DWSNZ; s69R further 2-year delay unless urgent)**

This delay is far too long to allow technologies to be incorporated or respond to emerging issues.

d) **Should there be different or further sanctions for failures to comply with any of the provisions of Part 2A Health Act; are ss69N and 69ZZH effective/useful? Should the offence provisions in s69ZZR-ZZX be reviewed?**

These sanctions are so rarely used that we have no experience in implementing them. The MoH would need to be encouraging and support the use of the sanctions rather than relying on voluntary compliance.

e) Should compliance with DWSNZ be discretionary or optional?

Compliance needs to be mandatory. ARPHS agrees with the Canterbury DHB's submission that the WSP should not be used as an "alternative compliance approach" which can circumvent actual compliance with the DWSNZ.

f) Should s69U Health Act (duty to protect source) be changed?

Refer to Comments under questions 9 and 10.

g) Should the s69V Health Act regime ("all practicable steps") be changed?; see also s69S. Should the section 69H Health Act definition of "all practicable steps" be changed?

The key problem results from the higher weighting given to financial factors over water supply risk in 69H(1). Given that the "person" identified in 69H is generally a local authority or CCO, financial factors should have a much lower weighting than public health risk, given councils' duty under section 23 of the Health Act to "improve, promote and protect public health". The law appears to legitimately excuse a local authority from taking practicable action (recognised as good practice) to correct serious and repeated problems with a substandard drinking water supply, despite multiple transgressions of standards and outbreaks over prolonged periods, on the grounds of expense, with minimal requirements to justify that inaction. Section 69H(3) implies that a DWA has the expertise to assess the financial position of a local authority, but gives no mechanism for the DWA to dismiss the claim of excess cost.

h) Should s69ZF Health Act be changed such that remedial steps are mandatory?

ARPHS strongly supports making remedial steps mandatory. The wording of this section and related sections needs to be amended to prevent inaction on addressing serious risks on the basis of costs and/or delay through an inadequately implemented WSP.

i) Whose responsibility is it to monitor and enforce the s69V obligations on a water supplier?

The current legislation assigns responsibilities for monitoring and enforcement to the DWAs and designated officers. A useful clarification in the legislation would be a section describing the overall purpose, roles and authority of the DWAs, Designated Officers and Medical Officers of Health. This should specify the roles of monitor, auditor and regulator.

j) Health Act does not specifically require an ERP- should it?

ARPHS considers that having an ERP as part of the WSP is essential. The ERP should be integrated with the Council's emergency management plan (under the Civil Defence Emergency Management Act).

**Issue 20: DWSNZ**

General comment

ARPHS considers that the DWSNZ needs comprehensive review and update. The questions raised by the inquiry all need to be considered as part of that review. Responses to some questions are covered elsewhere.

Self-suppliers with a 'community purpose' (e.g. educational facilities, community halls, premises open to the public) should have to comply with the drinking water parameters outlined in the DWSNZ.

See previous response. This topic needs to be part of a comprehensive technical review.

a) **Are the DWSNZ comprehensible to users; can they be simplified or clarified?**

The DWSNZ are difficult to comprehend without adequate training, and are open to interpretation in several areas.

Clarification of the CT approach for Chlorine disinfection in the treatment plant is recommended (i.e. section 4.3.2.1 and Section 4.3.2.2). We consider an increase in the chlorine level and a reduction in the chlorine contact time may be valid (currently the chlorine contact time must be more than 30 minutes). Allowing a reduced chlorine contact time may remove the need for a water supplier to increase its storage capacity, as well as the ability to increase throughput while maintaining the provision of safe potable drinking water.

The definition of Class 2 as stated in section 11.2 of DWSNZ needs clarification. It states that "tankered water carriers may also carry water from a source that is not from a registered water supply and does not comply with the DWSNZ, but is in accordance with the requirements of Class 2 water..." However, section 11.2 of the DWSNZ also states that Class 2 is intended for drinking water purposes after appropriate treatment, and an accompanying written statement supplied to the consumer must contain information from the DWA (Section 11.5), who may require the statement to include a 'boil water' notice. This is confusing.

b) **Adequacy of remedial actions: Greater sampling, speedier chlorination, longer chlorination; more than 3 clear results in contamination protocol; (cross refer s69ZF Health Act)?**

See previous response. This topic needs to be part of a comprehensive technical review.

**Issue 21: DW Guidelines**

a) **Review concept of a Guideline in addition to the DWSNZ.**

This topic needs to be part of a comprehensive technical review. The current Guideline contains technical information and guidance on interpretation. It can be updated more easily than the standard itself and hence should be more responsive to emerging issues (e.g. WSL's proposal for protozoal testing between clarification and filtration outlined above).

**OUTBREAK MANAGEMENT ISSUES**

**Issue 22: ERPs (Emergency Response Plan) (a.k.a Contingency Plans)**

General comment



ARPHS supports having ERPs as a mandatory component of the WSP. ERPs need to be consistent with the councils' civil defence and emergency management plans, and their development and implementation should be linked with councils' CDEM function. The interoperability between emergency plans of each agency is supported in the general structure of plans, emergency management framework (the "Rs" of Reduction of risk, Readiness, Response and Recovery) and the operational structure of the Coordinated Incident Management System (CIMS).

### **Issue 23: Communications**

- a) What changes are needed to communication practices in relation to a drinking water emergency?

In many outbreak and transgression incidents and events, a clear escalation pathway and up to date contact lists are crucial in communicating and escalating matters both internally within an organisation and to other external organisations.

Information on responding to drinking water standard transgressions and how to investigate incidents and outbreaks and reporting is outlined in sections 15, 22, 24 of the Drinking Water Assessor's Technical Manual. The communication pathways mainly focus on external parties, for example, the MoH and implicated water suppliers. Section 15 does mention HPOs and MOH within the internal structure, but does not include senior management in the escalation process.

We would like to see this communication gap addressed in the escalation processes within the 'Technical' and 'Administration' Manuals, to ensure there is consistency in the application of escalation and communication pathways across DWA units.

- b) Should a messaging system be used?

In public health the national Health Emergency Management Information System (Health EMIS) is used to report to regional and national Health colleagues, and to respond to regional and national Tasks (requests for information/action).

### **Issue 24: Other outbreak management issues**

- a) What practices should be adopted in relation to use of schools, GPs or others, as early warnings of an outbreak?

ARPHS uses its networks with the Ministry of Education, PHOs and DHBs to distribute early communications regarding significant events. These communications are usually in the form of Health Professional Advisories (HPAs). All DHBs across the country have a HPA process to disseminate information to their PHOs. In some areas they have a different name but they serve the same purpose. For ARPHS, we use HPAs to provide specific clinical advice. As an example, we recently sent out a HPA to all recipients to encourage specific testing procedures for legionnaires. We have a pre-determined list of recipients, which includes the MoH and DHBs.

In some circumstances, meeting with the school boards and parents has proved to be helpful when dealing with an outbreak incident at a school. Sharing of key messages such as hand hygiene and exclusion are vital.

b) Should the Ministry of Education have a role?

The Ministry of Education has an important role in distributing public health messages and information to its networks. This role allows the effective implementation of exclusion policies (i.e. keeping ill children away from school), and ensures families are informed about public health practices, such as hand washing.

Under the current legislative regime, the Ministry of Education's role could be further formalised and strengthened to improve the safety of drinking water at schools and ECECs. The results from the 2015-2016 annual survey indicate there is room for improvement, as only 59.2% of water supplies (mainly schools and ECECs) carried out E.coli monitoring, and of these, only 21.8% met the drinking water standards in terms of microbiological compliance.

ARPHS is aware of a few schools and/or ECECs that do not report E. coli transgression events to DWAs after receiving a lab report-notification. In previous drinking water annual surveys and/or surveillance sampling visits, DWAs have emphasised to schools/ECECs the importance and necessity of notifying DWAs in a timely manner about any transgression incident. However, recent site visits by DWAs confirm that there has been little improvement on this issue. Therefore, the Ministry of Education should take a leadership role for ensuring schools and ECECs promptly report E. coli transgressions in future. DWA advice can provide timely solutions to any transgression, and therefore, can potentially help prevent the spread of water-borne disease at schools and ECECs.

c) Should greater emphasis be placed on drinking water emergencies and the drinking water aspects of other civil defence emergencies? Should drinking water be recognised in civil defence emergency responses as an essential lifeline (as opposed to infrastructure to be managed)?

Yes, drinking water should be recognised in civil defence emergency responses as an essential lifeline. Clean water is not only essential for drinking purposes but is also necessary for disease prevention through its function in effective hand hygiene.

## **Appendix 1 - Auckland Regional Public Health Service**

Auckland Regional Public Health Service (ARPHS) provides public health services for the three district health boards (DHBs) in the Auckland region (Counties Manukau Health and Auckland and Waitemata District Health Boards).

ARPHS has a statutory obligation under the New Zealand Public Health and Disability Act 2000 to improve, promote and protect the health of people and communities in the Auckland region. The Medical Officer of Health has an enforcement and regulatory role under the Health Act 1956 and other legislative designations to protect the health of the community.

ARPHS' primary role is to improve population health. It actively seeks to influence any initiatives or proposals that may affect population health in the Auckland region to maximise their positive impact and minimise possible negative effects on population health.

The Auckland region faces a number of public health challenges through changing demographics, increasingly diverse communities, increasing incidence of lifestyle-related health conditions such as obesity and type 2 diabetes, infrastructure requirements, the balancing of transport needs, and the reconciliation of urban design and urban intensification issues.

