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Provisional
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Submission on: Protocols for the Public Health Grading of Drinking-Water Supplies

To: *Ministry of Health c/- Water Group ESR Christchurch*
From: *Water Group, Wellington Regional Council*
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1. Background

The Water Group of the Wellington Regional Council is the wholesale supplier of water to the four City Councils in the Wellington metropolitan area. In excess of 53,000 ML is supplied annually. This is believed to be about 10 percent of New Zealand's reticulated potable water. The cities reticulate the water to properties housing approximately 350,000 residents and also to commercial and industrial users.

The submission is in response to the Ministry of Health's (MoH) discussion paper (July 2001) and the public meeting held in Wellington on 16 August.

2. Grading of Drinking Water Supplies

As part of this review process, consideration should be given as to what is to be graded. The word "supply" has the connotation of a physical product, in this case water. Members of the public, when enquiring about the grading, are no doubt thinking of the grading of the water. Whereas, the grading really refers to the supply systems, including water source, water treatment, and the distribution network. Risks associated with these systems may affect the quality of the water supplied. Normally though there would be an expectation that the water supplied to consumers by publicly owned systems meets the Drinking-Water Standards for New Zealand (DWSNZ).

There are advantages in having a clear distinction between the quality of the water supplied and the quality of the systems which treat the water and transport it to the users.

3. Should Drinking Water Systems (Supplies) be Graded?

Mention is made in the MoH discussion document that the current (1993) grading scheme has been very successful in improving drinking-water supply management. A number of papers published or presented through the New Zealand Water and Waste Association support this contention.

However, pending legislative change, compliance with the DWSNZ will be compulsory. A further factor is the likely mandatory public health risk management plans (PHRMP). In due course it will be possible for the MoH to publish whether or not a particular supplier has complied with the DWSNZ and the status of their PHRMPs. For example, whether the plans are completed, or completed and being implemented. Once this situation arises it is questionable a grading will still serve a useful purpose.

It is recommended that there should be public debate about whether or not a grading system is still warranted.

4. **Proposed Grading Protocols**

On the assumption that a grading process continues, our comments on the four protocols in the MoH discussion paper are as follows:

4.1 *Protocol One*

This can be implemented fairly quickly and is reasonably easy to understand. Essentially it is an expanded 1993 grading system with modifications for the latest DWSNZ. Its simplicity and ease of understanding are its main attractions. It does though carry a “stick” – it is not possible to obtain a grade higher than a D until the PHRMPs are completed. This ranks the PHRMPs at the same risk level as not complying for E. coli and protozoa, and more important than chemical compliance. Possibly this elevates the PHRMPs to a level of importance that is difficult to justify. As the Water Group already has extensive quality and operational protection systems in place, the two year maximum timeframe to complete the PHRMPs is not seen as too onerous. There is some objection though to the principle of a “stick” without a “carrot”.

At the public meeting it was clarified that the grading under protocol one will not be constrained by the PHRMPs, as long as they are being implemented. This is different from the published MoH discussion paper – the grading cannot go higher than C until implementation is completed. While this change is welcomed, it does mean a finite time should be agreed for the plan implementation.

4.2 *Protocol Two*

Protocol Two offers a reward (carrot) in the form of an asterisk added to the grading for completing the source/treatment and distribution PHRMPs and starting implementation. Down grading for not completing the PHRMPs is not as harsh as protocol one.

From a simplicity point of view, the asterisk may be difficult to explain. Using a new alpha or alpha numeric system and raising the grade by one step may be more satisfactory.

As proposed, the protocol treats both the source/treatment and the distribution components as a whole system for determining the grades of the two

components. Not completing the PHRMPs for one component affects the grades of both components. In Wellington, where ownership and control of the source/treatment and distribution systems are separate, this dependency is not acceptable. For example, the Water Group should not have to tell three of its customers that the source/treatment has been downgraded because say the fourth customer has not completed the PHRMPs for their distribution system. Likewise we would not expect our customers to be penalised if we had not completed the PHRMPs.

4.3 *Protocol Three*

While this system of merit and demerit points seems reasonably straightforward, it is very subjective. In this respect, the Water Group has concerns about the ability of the Drinking Water Assessor to understand our system and the way it is currently set up to manage risks. Considerable debate is expected about how the merit points are awarded and the demerit points arrived at. At this stage, there is insufficient evidence to suggest the outcome will be a fair reflection of the risk management processes which have already been incorporated.

4.4 *Protocol Four*

This is a complex risk based protocol which will be difficult to explain to the public. A long implementation period and reliance on the WINZ system. The WINZ system is not compatible with the way we continuously record data for compliance purposes.

5. **Preferred Protocol**

On the basis that the grading is primarily for use by the general public, then simplicity is the key attribute.

A protocol which combines some of the features of protocols one and two is suggested by the Water Group. Namely:

- Based on the 1993 grading system with appropriate changes for the DWSNZ:2000.
- Grade the source/treatment and distributions separately. There would be no interdependence as in protocol two.
- If the PHRMPs have not been completed, then drop one grade. If the PHRMPs have been completed and implementation **started**, then the grading stays the same. If the PHRMPs have been completed and implementation **completed**, then increase the grading by one grade. In the MoH discussion paper, table 4, an asterisk has been added to a grade if a start has been made on implementing the PHRMPs. Whereas in this proposal the grading stays the same once a start has been made on implementation. An extra grade is obtained once implementation is completed. Effectively the highest grading could be a new grade called "A2" instead of "A1" as at present. A2 may imply a lower standard than A1, a possible alternative is AA and AAA.

5.1 *Secure Groundwater*

In section 2 of this submission, it is suggested that the “system” rather than the “product” is graded. A water treatment plant system “treating” secure groundwater is able to show microbiological compliance if:

- Water leaving the treatment plant is monitored for *E. coli* and complies with the DWSNZ for this.
- Water is solely drawn from secure groundwater, as defined in the DWSNZ.

Assuming the other criteria in the DWSNZ are met, then there should not be any barriers to the treatment system receiving the highest grading. At present it is not possible to achieve higher than a “B” grading if there is no disinfection with residual. It is possible to produce extremely high quality water from a plant treating secure ground water with very low risks. This water would comply in all respects with the DWSNZ. At the same time, the public are informed the treatment plant has been graded B, which is only “satisfactory” under the present grading definitions. This produces a contradiction and will continue to cause confusion amongst the public.

Our view is that “disinfection with residual” (usually chlorination) should only apply to the distribution system when the water source is solely a secure groundwater.

It would be appreciated if this anomaly is corrected in the new grading rules.

6. **Grading Nomenclature**

If the suggestion in 5 is adopted, then the grades would range from E (lowest) to A2 (highest). At the Wellington public meeting, there was discussion about the use of alphabetical symbols to signify the grading and the definition of these. In particular the letter “C” and the current definition “Marginal – moderate levels of risk, may be acceptable for small communities”.

The New Zealand education system has ingrained society with the view that a “C” represents a pass or a satisfactory result. This is more akin to the current definition of a “B” grade.

Fortunately there have been very few media reported water supply incidents in New Zealand in the last decade that have affected whole communities. Some communities have an “E” grading for their source and treatment, defined as “completely unsatisfactory, very high level of risk”. It would be expected that there would have been incidents in several communities over the last decade. Our conclusion is that the current grades and their definition may be more reflective if they are displaced by one definition. Hence, the current grade of “E” becomes an “F” and a new definition is required for an A1 grade.

A suggested definition set for source and treatment is:

<i>Grade</i>	<i>Definition</i>
A1	Completely satisfactory, negligible level of risk, demonstrably high quality through risk management plan implementation and an ISO accreditation.
A	Completely satisfactory, very low level of risk. Risk management plan implemented.
B	Completely satisfactory, very low level of risk. Risk management plans prepared.
C	Satisfactory – low level of risk.
D	Marginal – moderate level of risk, may be acceptable for small communities.
E	Unsatisfactory, high level of risk.
F	Completely unsatisfactory, very high level of risk.

It is suggested that there are continuous monitoring requirements, regardless of the population base, in order to achieve an A1 or A grading. It would seem unlikely that any system which includes some form of treatment would receive a grade lower than an E.

7. **Transmission System**

As a water wholesaler, the Water Group uses a transmission system of pipes to supply water to our customers. Usually direct to their reservoirs. At present this system is not graded. Grading a transmission system using the distribution system rules is not appropriate as it serves a different purpose. No doubt some other local authorities and Watercare Services have systems which could be characterised as a transmission system – long distances, infrequent off takes, possibly large diameters and high pressures.

The Water Group is ambivalent as to whether or not transmission systems are graded. Adding a third letter to the overall grading will increase the complexity and possibly create public confusion. Not grading the systems results in a gap. There may be an increased risk which is not known to the public.

A possible solution is to grade the transmission systems under new rules and make the grade a subset of the source/treatment grading. For example, the source/treatment grade could not be higher than the transmission system grade. In this way, there remains two published grades for an overall system – source/treatment and distribution.

8. Conclusions

The Water Group of the Wellington Regional Council appreciates the amount of work which has been put into the MoH discussion paper. Presenting four separate protocols has provided a good basis for considering the issues.

Continued public confidence in our water supply system is very high on our priority list. Confidence can be enhanced if the public are able to associate the grading nomenclature with their own life experiences. Simplicity and realism in the grading presentation are therefore the keys.

Our preferred protocol would combine elements of protocol one and protocol two, as outlined in this response. A grade would be assigned to the source/treatment system and a separate grade to the distribution system. Transmission systems can be graded as a subset of the source/treatment grading if required.

At present the grades range from A1 to E. It is suggested this be extended so the grades would range from A1 to F and some changes are made to the definitions. When the water source is solely a secure groundwater, then the source/treatment grading should not include a requirement for disinfection with residual.