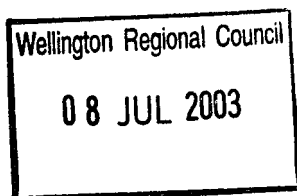




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4 July 2003

Mr David Benham
 Divisional Manager
 Utility Services
 Greater Wellington - The Regional Council
 PO Box 11-646
 WELLINGTON

Dear David

CHLORINATION OF HUTT VALLEY ARTESIAN WATER SUPPLY

A report was presented to the Hutt City Council on the 27 May 2003 on the issue of 'Chlorination of Hutt Valley Artesian Water Supply' (copy attached).

This issue arose as a result of a report (02.217) to the Wellington Regional Council on the same issue, and a subsequent letter requesting Hutt City Council advise its preference as to whether or not the water supplied from the Waterloo Treatment Plant be unchlorinated as at present or chlorinated.

Hutt City Council subsequently made the following resolutions:

"That Council:

- (i) *notes that Greater Wellington-The Regional Council has requested that Hutt City Council advise its preference whether the artesian water supplied from the Waterloo Treatment Plant should be unchlorinated (as at present) or chlorinated;*
- (ii) *notes that artesian water supplied from the Waterloo Treatment Plant is provided to Lower Hutt, Eastbourne and Petone consumers;*
- (iii) *notes that the unchlorinated artesian water supplied to Hutt City consumers is currently graded "satisfactory" under the Ministry of Health Drinking Water Standards 2000;*
- (iv) *notes that, although there are risks associated with an unchlorinated water supply, good management practices can limit the risks to low levels; and*

- (v) *advises Greater Wellington that it prefers to retain its current water arrangements and that, if Greater Wellington wishes to change to chlorination of the artesian water supply, then it should conduct its own public consultation programme with Hutt City residents."*

On behalf of Hutt City Council I now formally advise Greater Wellington that Hutt City Council prefers to retain its current water arrangements and that, if Greater Wellington wishes to chlorinate the artesian water supplied from the Waterloo Treatment Plant it should conduct its own public consultation programme with Hutt City residents prior to doing so.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Stuart Duncan', with a long horizontal stroke extending to the right.

Stuart Duncan

GENERAL MANAGER

S&P 8-1
HUTT CITY COUNCIL

WS80-11-3
28 April 2003

The Co-Chairs and Members STRATEGY AND POLICY COMMITTEE

CHLORINATION OF HUTT VALLEY ARTESIAN WATER SUPPLY

Report No. S&P2003/5/8

RECOMMENDATIONS:

That the Committee:

- (i) notes that Greater Wellington-The Regional Council has requested that Hutt City Council advise its preference whether the artesian water supplied from the Waterloo Treatment Plant should be unchlorinated (as at present) or chlorinated;
- (ii) notes that artesian water supplied from the Waterloo Treatment Plant is provided to Lower Hutt, Eastbourne and Petone consumers;
- (iii) notes that the unchlorinated artesian water supplied to Hutt City consumers is currently graded "satisfactory" under the Ministry of Health Drinking Water Standards 2000;
- (iv) notes that although there are risks associated with an unchlorinated water supply, good management practices can limit the risks to low levels; and
- (v) recommends that Hutt City Council carry out an effective public consultation programme to determine the wishes of consumers prior to advising Greater Wellington of its preference on chlorination of the artesian water supply.

1. PROPOSAL

1.1 The purpose of this report is to:

- 1.1.1 inform the Committee of the request from Greater Wellington – The Regional Council for Hutt City Council to advise its preference as to whether or not the water supplied from Waterloo Treatment Plant should be unchlorinated (as at present) or chlorinated;

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- 1.1.2 inform the Committee of the risks associated with the unchlorinated artesian water supplies and the strategies in place to minimise them; and
 - 1.1.3 seek the Committee's approval to carry out an effective public consultation programme on chlorination of the artesian water supply to determine the wishes of consumers.
- 1.2 The Committee may then make a decision as to whether or not the supply should remain unchlorinated and advise Greater Wellington - The Regional Council of their preference.

2. BACKGROUND

- 2.1 A report to the Greater Wellington Utility Services Committee (Report 02.217) outlined the risks associated with supplying unchlorinated water from the Greater Wellington Waterloo Treatment Plant. Greater Wellington subsequently requested Hutt City Council advise its preference as to whether or not the water supplied from the Waterloo Treatment Plant should be unchlorinated (as at present) or chlorinated.
- 2.2 Water supplied from the Hutt Valley artesian aquifer is of very high quality and free of contamination. The public water supply from the artesian aquifer has remained unchlorinated since its introduction in 1908 and is highly valued by many consumers in Lower Hutt, Eastbourne and Petone.
- 2.3 Water supplied from the Wainuiomata Treatment Plant and Te Marua Treatment Plant are sourced from river catchments and require disinfection with chlorine prior to distribution. Chlorinated water from these plants supplies Wainuiomata, Stokes Valley, and Manor Park as well as Porirua and Upper Hutt Cities. Wellington City is supplied with a mix of chlorinated water from the river catchments and chlorinated Hutt Valley artesian aquifer water.
- 2.4 The water taken from the Hutt Valley artesian aquifer is classified by the Ministry of Health Drinking Water Standards for NZ 2000 as "secure groundwater" and has a long history free from significant contamination. The only contamination of this supply on record occurred in 1991 when the supply was contaminated at the Waterloo Treatment Plant as a result of a seagull entering a holding tank. The contamination was identified very quickly by Hutt City Council's water monitoring programme and measures put in place to flush and disinfect the reticulation.

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- 2.5 Notwithstanding the excellent record, the risk of bacteriological contamination is always greater in unchlorinated water supplies. A multi-barrier approach is usually accepted for public water supply systems because of the potentially severe consequences of contamination. Good management practices can limit these risks to low levels but the nature and level of the risk should be acknowledged and considered in a decision on whether or not the supply should remain unchlorinated.
- 2.6 Sections of the community have very strong and sometimes entrenched views on the quality of their water and the addition of chemicals to the supply (the recent Petone fluoride issue is an example). The taste and odour of chlorine in drinking water is the most common reason for chlorinated water not to be wanted by consumers.

3. COMMENT**Water Supply Grading and Chlorination**

- 3.1 The Ministry of Health (MOH) grades all drinking water supplies throughout New Zealand in accordance with The Drinking Water Standards for New Zealand: 2000 (DWSNZ 2000). At present compliance is voluntary, but it is expected that the proposed Health (Drinking Water) Amendment Bill will make compliance mandatory.
- 3.2 The MOH system assigns gradings for both the water source/ treatment and distribution system, as noted in Table 1:

Table 1: MOH GRADING SYSTEM

	SOURCE/TREATMENT
AI	Completely satisfactory +
A	Completely satisfactory
B	Satisfactory
C	Marginal
D	Unsatisfactory
E	Completely unsatisfactory
	DISTRIBUTION
a	Completely satisfactory
b	Satisfactory

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c	Marginal
d	Unsatisfactory
e	Completely unsatisfactory

- 3.3 Water supplied from the Hutt Valley artesian aquifer through the Waterloo Treatment Plant has a Bb grading (B source, b distribution).
- 3.4 Achieving an Aa grading would require treatment with a disinfectant. The disinfectant must retain a residual concentration to combat low levels of microbial contamination that may enter the system after treatment. Chlorination is the most common disinfection process.
- 3.5 Chlorination is effective in removing most common microbes including bacteria and viruses. Chlorination is not effective against cryptosporidium and giardia. Chlorination has a limited ability to combat chemical contamination.
- 3.6 There is no legal requirement to chlorinate the water supplied from the Waterloo Treatment Plant, or to achieve an Ala or Aa grading. While an Ala or Aa grading represent the highest security for a water supply, Bb and Cc are acceptable under the drinking water standards.

Current Practice in NZ and Overseas

- 3.7 Other Councils in New Zealand including Christchurch City Council, and Hastings District Council operate unchlorinated water supplies sourced from secure groundwater systems and use good management practices to reduce the risk of contamination to low levels.
- 3.8 Unchlorinated water supplies are also common in parts of Europe, particularly the Netherlands and Germany where acceptance of a low level of risk is considered preferable in some instances to the negative aspects of permanent chlorination of public water supplies.

Source and Treatment Risk

- 3.9 Responsibility for extracting, treating and delivering water to the primary distribution reservoirs of the regions cities lies with Greater Wellington's Utilities Division. The Greater Wellington report concludes that the lack of a treatment process (chlorination) at Waterloo Treatment Plant means that the risks associated with water supplied from that plant are greater than from their other Treatment Plants.

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Distribution System Risk

3.10 Hutt City Council is responsible for the storage and distribution of water throughout the City. The risk of contamination in the storage and distribution of water is higher than the risks associated with extraction, treatment and bulk supply.

3.11 The higher risks are associated with:

- the number of storage reservoirs and the potential for ingress of contaminants;
- the length of distribution mains and service connections (685 kilometres and 36,000 respectively);
- the need to interrupt the water supply to make repairs and connect new services; and
- the potential backflow of contaminated water from properties plumbing into the water supply system.

Storage and Distribution System: Risk Mitigation

3.12 The Hutt City Water Supply Asset Management Plan 2002 provides the policy framework for managing risk in the provision of water supply services to the community.

3.13 The contamination risk mitigation strategy is managed from two fronts. The first emphasis is proactive and reduces the likelihood of contaminants entering the system. The second is reactive and based on monitoring and response mechanisms, contingency planning and procedures.

3.14 The approach adopted to managing the unchlorinated artesian water supply has four main components:

- system design where design standards and specifications minimise the risk of contamination entering the system;
- **operations, maintenance and construction procedures** that minimise the risk of contamination during operation, maintenance and construction activities carried out on the system ;
- **monitoring**, to ensure the system is free from contamination and identify when and where contamination may have occurred; and
- **response**, which must be prompt and effective, to any indication of contamination, even if no health risk eventuates.