

**Report No. 00.412**

31 May 2000

File: B/20/1/1

Report 00.412.doc

Report to the Utility Services Committee  
from Murray Kennedy, Strategy and Asset Manager

## **Public Access to the Wainuiomata and Orongorongo Water Supply Catchments**

### **1. Purpose**

To approve a policy which will allow controlled and limited public access to the Wainuiomata and Orongorongo Water Supply Catchments.

### **2. Background**

Past Committee reports have mentioned the opening of the Wainuiomata/Orongorongo catchments to the public, in particular, 96.110, 97.326 and 98.296. Allowing the public to access these catchments was deferred until the water produced from the water treatment plant (WTP) consistently achieves a very high standard. The Council has a policy of achieving an "A" grading for WTPs, where it is practical to do so.

The Policy and Finance Committee approved an Operational Plan for the Wainuiomata and Orongorongo catchments in June 1998, Report No 98.296 refers and is **Attachment 1**.

It was proposed to open the catchment in September 1998. However a minor giardia incident lead to the temporary closure of the Wainuiomata WTP in late August 1998. Consequently the restricted opening of the catchments was deferred, this was one of the recommendations in Report 98.428 (**Attachment 2**).

The chemical reaction tank at the Wainuiomata WTP is now operational and other changes to the plant have improved the water quality. The plant generally is not as robust in its operation as the Te Marua WTP. There is still the occasional minor turbidity spike at the Wainuiomata WTP. Work is continuing on why these spikes are occurring and further changes are being investigated. Overall though the average turbidity has decreased by 0.4 NTU in 1997/98 to a situation where the average is now less than 0.1 NTU. One year of satisfactory results is required before applying for an "A" grading.

Accordingly, it is now appropriate to again consider the issue of public access to the Wainuiomata and Orongorongo water supply catchments.

The Hutt Water Collection Area was opened for public access in June 1997. The ruggedness of the area and distance from public roads has been a factor, which has limited the number of visitors.

### **3. Issues**

#### **3.1 Purpose of the Catchments**

The primary purpose of the catchments (7000 + ha) is to collect raw water for treatment at the Wainuiomata WTP. Any other activities in the catchment must not interfere with this process or degrade the raw water quality.

#### **3.2 Catchment Management and Public Health**

Originally water supply catchments were closed to the public to protect the raw water, chlorination often being the only form of treatment. Then, as full treatment processes were introduced, there has been a general relaxation of controls on access to catchments. This is an international trend.

Since the previous Committee reports in 1998 the pendulum has swung again to limiting access to catchments where practical to do so. Incidents in Sydney and other places have caused this change in thinking.

The Wainuiomata and Orongorongo catchments produce much higher quality raw water than the substantially large Sydney catchments. There is not much in common between the raw water from the Wainuiomata and Orongorongo catchments and the Milwaukee incident also mentioned below. Rather, these incidents are illustrations that problems do arise occasionally in developed countries and the consequences can be very serious.

Extracts from the Third Report of the Sydney Water Inquiry (McClellan report October 1998) are:

*“My investigations have shown that the main catchment for Sydney’s water supply is seriously compromised, not only by the presence of Cryptosporidium and Giardia but in other significant respects” page 1.*

*“A modern treatment plant is not a substitute for proper catchment management. Protecting the catchment provides the best long-term protection for Sydney’s drinking water”. Pages 5/6*

In December 1999 the New South Wales Government published a document “The Management of Giardia and Cryptosporidium in Town Water Supplies – Protocols for Local Government Councils”. It echoes many of the sentiments expressed in the McClellan reports.

*“Catchments are the first and most critical barrier in a multiple barrier approach that is essential to protect drinking water quality for communities. The lower the quality of raw waters the greater the reliance on water treatment processes to protect public health. It is recognised that no level of treatment should be solely relied upon to counter the impact of continually deteriorating raw water quality.*

*Consequently, to provide good drinking water quality it is essential that catchment management practises promoting clean raw water supplies be implemented. Appropriate catchment management techniques and planning controls can assist councils reduce the risk of water borne pathogens such as Giardia and Cryptosporidium.” Page iii.*

The most infamous recorded cryptosporidium contamination event was in Milwaukee in 1993. **Attachment 3** provides background details. Although the raw water was from a lake it indicates the potential problems when water treatment plants are unable to cope because of the raw water quality.

A current event is in Walkerton in Canada (see **Attachment 4**). Water in town wells became contaminated. The bacteria, E coli, has caused 7 deaths and 1000 residents have been ill. E coli is also found in surface water catchments. Preliminary analysis of the Walkerton event is contamination of the well water at the same time as a chlorination plant became unreliable.

In New Zealand the Ministry of Health has been proactive in raising water treatment and catchment issues. A discussion document was published in 1998 and this is likely to lead to changes in how water treatment plants are graded. For the first time in New Zealand catchment management may be a consideration. Catchments will be rated as protected or unprotected. A proposed definition for “protected catchment” is:

A catchment which has major points of access fenced and is controlled so that there is only strictly controlled human access and limited feral animals. In most New Zealand situations controlled culling will be required in order to achieve a satisfactory level of feral animals.

Although the process of reviewing the grading requirements has not been completed it is possible that to achieve an "A" grading for a WTP water it will have to be sourced from a protected catchment. Setting the gradings is delegated by the Ministry of Health to the Public Health Service. The Medical Officer of Health has been consulted about opening the catchments. His comments are included as **Attachment 5**.

### 3.3 **Wainuiomata and Orongorongo Catchments**

Apart from some shingle slides in the Orongorongo range, the catchments give the appearance of being in pristine condition. Possum numbers were greatly reduced through a poison drop last year. This year there has been some culling of deer, goats and pigs. The catchment is covered in indigenous vegetation.

The water in the Wainuiomata and Orongorongo rivers, at the collection points, contains similar amounts of giardia and cryptosporidium as the raw water at the Kaitoke weir, which feeds the Te Marua WTP. **Attachment 6** indicates the levels of

micro-organisms in the various catchments. Cryptosporidium is now present in the Hutt water supply catchment, being detected at the Kaitoke weir. Note the y scale on the graph in **Attachment 6** is logarithmic.

### 3.4 Water Supply Process

The water supply process uses a multi barrier approach to ensure the drinking water meets the required standard. These barriers are;

- using the best quality raw water available
- treating the water
- adding chlorine where the water comes from a surface source to kill any bacteria and to protect the water as it moves through the distribution system.

All three barriers are effective against giardia and coliforms. Chlorine, at the levels used in drinking water, is not effective against cryptosporidium. Water treatment plants are sometimes rated according to the ability to remove particles from the raw water. Wainuiomata achieves a 3 log removal. This implies 99.9 percent of cryptosporidium entering the plant in the raw water is removed. Or expressed another way, one in a thousand could pass through the plant. This is a satisfactory outcome provided the cryptosporidium levels in the raw water are kept low. Giardia and cryptosporidium are spread from the faeces of warm blooded animals, including humans.

Limiting activities in the catchment is one way of minimising the microbiological content in the raw water.

### 3.5 Interest Groups

A number of groups have been identified who may, from time to time, be interested in gaining access to the water catchments. These include;

- General public, either singly or in groups
- Societies interested in the flora and fauna
- Local iwi
- Recreational shooters
- Scientific researchers
- Trampers
- Police and search and rescue for training purposes
- Tourist operators

## 4. Discussion

It is not easy to satisfy the needs of all interest groups and at the same time preserve the catchment for its prime function – to produce the highest quality raw water. Probably the best outcome is to allow limited, controlled access.

Any increase in the number of people in the catchments increases the risk to the water supply system. From a water supply point of view there is still a preference to keep the catchment closed to the public. However, it is recognised there are wider issues

and some access is possible without an undue increase in risk. Particularly if activities take place mainly downstream of the various water supply intakes.

Some aspects of the access policy approved by the Policy and Finance Committee in 1998 are no longer appropriate.

For example;

- recreational hunting organised by the NZ Deer Stalkers Association
- staff hunting
- general open days for the public

The policy does not adequately reflect current thinking on the management of water supply catchments.

## **5. Proposal**

It is proposed, in principle, that the catchment is available to the public as follows:

- For general public and interest groups : 1 day a month except June and July. Allocation by application with a ballot held if necessary. The groups would be accompanied by one or more WRC staff. The day would usually be a Saturday or Sunday.
- For the police/search and rescue : one exercise a year, if requested.
- For scientific study : applications on merit, but there would have to be direct benefit to the region.

This is more restrictive than the current approved policy.

It is not proposed to allow recreational shooting in the catchment per se. Culling of animals though is an important part of catchment management. Depending on the review of the culling carried out in April this year, non-professional shooters may be employed for further culling. Professional shooters may also be contracted as required.

At present the main entrance gate to the Wainuiomata catchment is kept locked. Staff, other than those at the WTP and the local ranger, sign for a key and fill in the logbook before gaining access to the Catchments. With the controlled public access proposal this arrangement is able to continue.

A detailed proposal would be submitted for approval.

## **6. Environmental Issues**

There are some environmental issues and these will be taken into consideration when the full proposal is developed.

## 7. **Communications**

Following the meeting the Committee may like to make an announcement about the proposal for controlled public access to the catchment.

## 8. **Recommendations**

(1) *That the Committee approves the restricted opening of the Wainuiomata and Orongorongo water supply catchments and instructs Water Group Officers to prepare a detailed proposal.*

Report prepared by:

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## **Attachments**

Attachment 1: Report 98.296 – Wainuiomata/Orongorongo Access Operational Plan for 1998/99

Attachment 2: Report 98.428 – Public Access to Wainuiomata – Orongorongo Water Collection Area

Attachment 3: Miscellaneous; Outbreak of Cryptosporidiosis, Milwaukee, Wisconsin, United States

Attachment 4: Two emails from American Water Works Association (AWWA)

Attachment 5: Letter from Public Health Service, Hutt Valley Health  
Public Access to the Wainuiomata and Orongorongo Water Supply Catchments

Attachment 6: Catchment Cryptosporidium and Giardia recent records