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**Report 02.543**

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

**Wainuiomata Treatment Plant : Catchment Management**

1. **Purpose**

To update the Committee on management issues for the Orongorongo and Wainuiomata water collection catchments.

2. **Background**

The Utility Services Committee was last updated with a specific report on the Wainuiomata and Orongorongo catchment management five years ago (Report 98.495 – Attachment 1).

Using land for water collection is provided for in the Wellington Regional Water Board Act 1972 (WRWBA). The Act allows bylaws for regulating, controlling or prohibiting access to the catchments. In 1994, the Regional Council introduced the Forest, Parks and Recreation Bylaws to provide a means of controlling access to water catchments and other Council land. At that time, the Wainuiomata and Orongorongo water catchments were closed to the public. A staged process to allow managed public access was subsequently approved. Reports 96.110, 97.326, 98.296 and 00.412 provide background information, attachments 2, 3, 4, 5 respectively. The third stage of this managed access was considered by the Committee at its meeting on 23 July 2002.

3. **Drinking Water Standards**

One of the reasons for keeping the water catchment closed was to protect the quality of the raw water at a time when there was minimal water treatment.

Sydney is a prime example of what can happen when insufficient attention is paid to catchment control. Report 98.404 – Attachment 6, backgrounds the Sydney incidents in July and September 1998. As a result of the incidents, a Sydney Catchment Authority was established. About 40% of the Sydney water catchment area of 9,050km<sup>2</sup> has restricted public access.

An event in Walkerton Canada in May 2000 resulted in about half of Walkerton's population (2,300 people) becoming ill. Seven people died. The second of a two-part report from the Walkerton Inquiry, was published in May 2002. At Walkerton, unsecured groundwater became contaminated with *E.coli*. An article from the NZWWA Journal July/August 2000 (Attachment 7) provides additional information about this unfortunate event.

While the Water Group does not have any unsecured wells, the Walkerton incident is a timely reminder of what can go wrong when water collection, treatment and distribution is not taken seriously.

The Regional Council has a policy of targeting an A grading, where practical for water treatment plants. It was not previously possible to achieve a grading higher than C for the Wainuiomata Water Treatment Plant (WTP) because of turbidity spikes in the filtered water. Construction of a chemical reaction tank in 1999 and fine-tuning of the plant was supposed to cure this problem and allow for an A grading. It showed signs of doing so until the Standards were raised considerably with the release, at short notice, of the Drinking Water Standards for New Zealand 2000. These came into effect on 1 January 2001. Turbidity recording points changed from the plant outlet to the plant's individual filters. Hence, the buffering effect when four out of five filters were running satisfactorily and one wasn't, was lost.

High turbidity readings may indicate that there are particles in the water of *Giardia* and *Cryptosporidium* size. The Wainuiomata WTP was closed briefly in August 1998 when *Giardia* was detected in the treated water. This coincided with the detection of higher levels of *Giardia* in the raw water.

Instrumentation and other changes have now been made to the Wainuiomata WTP to improve the treated water quality in order to try and achieve compliance with the A grading standard. It will probably be another three to four months before sufficient data is available to know whether or not the standard can be met. Twelve months data is required to accompany a regrading application. If the recent changes have not been sufficient, then a change of filter material may be a possible solution. In the meantime, officers remain concerned to ensure that the water entering the plant is of high quality.

A multi-barrier approach is adopted to treating surface water:

- Obtain the best possible raw water
- Treat the water using any appropriate technology
- Add chlorine to treat any residual and protect the water as it moves through the delivery pipework.

New water treatment plant grading rules expected shortly are likely to result in a D grading for the Wainuiomata WTP if the turbidity spike problem is not resolved.

One of the factors that can affect the grading of WTPs in New Zealand is the source water quality and whether the catchment is protected or unprotected. The new grading criteria will probably also state that a WTP using direct filtration is down graded by one grade if the source water receives direct discharge of human or animal effluent and the median *E.coli* concentration is >500/ML. Although this will not necessarily impact on the Wainuiomata WTP, it does indicate that the source water should be as free from pollution as practical.

## 4. **Catchment Management**

### 4.1 **Ranger Service**

A full time ranger was appointed a few years ago and the expected benefits have been achieved. These included a reduction in unauthorised entry to the catchment and controlling visitor groups. Since the ranger service started, the number of unauthorised persons encountered in the catchment has dropped. It is now also unusual to locate cultivations of non-native plants.

Noxious weeds and other plant species are being brought under control. For example, the old house site adjacent to the Orongorongo River is essentially clear of introduced plants. Having a full time ranger has assisted in improving relations with neighbouring property owners.

### 4.2 **Pest Control**

Possum numbers were substantially reduced following a poison drop in the winter of 1999. This, combined with professional and recreational hunters, has reduced the total number of pest animals within the catchment area. Culling of goats and pigs will continue as the need arises. It is expected that recreational hunters, operating under a ballot system for one month each year, will keep deer numbers under reasonable control. Further possum control work is expected in about two years.

### 4.3 **Security**

A separate restricted Committee report deals with various security issues.

## 5. **Water Group's Standards**

There are five water standards to measure catchment activities against:

- *Water Quality*

The higher the water quality entering a water treatment plant, the easier it is to comply with the grading for the particular WTP. Any catchment activities that improve the quality of the raw water are therefore beneficial.

- *Security of Supply*

Currently the standard allows for one of the three major water treatment plants to be off line and the basic water supply needs of the community still met. Because there is no off river storage at Wainuiomata, the plant is usually not operating for up to three days during periods of heavy rainfall. Maintaining healthy and dense native

bush reduces the raw water turbidity and minimises the time the WTP is not producing water for public consumption.

- *Environmental*

Removal of introduced species (animals and plants) is part of the commitment to the environment and supports maintaining a high water quality and security of supply.

- *Customer Service*

Achieving the first two bullet points assists in maintaining customer service.

- *Efficiency*

The higher the quality of the raw water, the less the cost to treat it. There are costs to start up a river sourced WTP after it has been off line. Reducing the number of times the plant goes off line through poor raw water quality improves the plant's efficiency.

## 6. **Management's View**

Senior management in the Water Group have been reluctant to see the catchments opened to the public from a risk reduction view point. Each person entering the catchment increases the risk to the water and the water treatment process by a small amount. Collectively then, 1000 people entering a catchment each year create a greater risk than only staff entering the catchment.

Both the Wainuiomata and Lower Georges Creek water intakes are close to the Wainuiomata water treatment plant. Water passing through the intakes reaches the water treatment plant in a matter of minutes. This contrasts with the Auckland situation where the public has access to the catchments but water is drawn from retention dams. Any polluted water entering the dams is immediately diluted and may not be used for sometime.

With the Te Marua water treatment plant, some problems can be resolved by switching from river water to lake water. At Wainuiomata, there is no off river storage.

The Water Group's senior managers acknowledge that the Landcare staff have successfully implemented the Council's earlier resolutions for managed access to the Wainuiomata catchment. Managers though are strongly opposed to moving from managed access to an open access policy.

## 7. **Medical Officer of Health**

The Medical Officer of Health outlined his views on catchment management in a letter dated 13 June 2000 (Attachment 8). Advice has been received that those views are still current.

## 8. **Communications**

There are no immediate communication opportunities.

## 9. **Recommendation**

*That the Committee endorse the current policy of managed access for the Wainuiomata and Orongorongo catchments.*

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### **Attachments**

**Attachment 1** : Report 98.495

**Attachment 2** : Report 96.110

**Attachment 3** : Report 97.326

**Attachment 4** : Report 98.296

**Attachment 5** : Report 00.412

**Attachment 6** : Report 98.404

**Attachment 7** : Article from NZWWA on Walkerton incident

**Attachment 8** : Hutt Valley Health letter