Water Supply Annual Report

FOR THE YEAR ENDED 30 JUNE 2009

Quality for Life

greater WELLINGTON
REGIONAL COUNCIL | Water

Cover image: The Hutt Water Collection Area, looking north into the Western Hutt River valley.
Photo: GWRC

Contents

Introduction

Reporting scope

This report covers the achievements and challenges for Greater Wellington Regional Council's bulk water supply activity, Greater Wellington Water, for the period 1 July 2008 to 30 June 2009.

Greater Wellington's Annual Report meets its statutory reporting requirements. This report is supplementary to the Annual Report and provides our city council customers and other stakeholders with a more detailed account of our bulk water supply operation.

The commentary on pages 3-22 reflects our long-term performance indicators and is referenced to objectives and targets from our quality (QMS) and environmental (EMS) management systems. It covers financial, social and environmental aspects of our activities, within the scope of our performance indicators and management systems.

Our purpose

We aim to provide enough high-quality water each day to meet the reasonable needs of the people of the greater Wellington metropolitan area, in a cost-effective and environmentally responsible way.

What we do

We collect, treat and distribute water to four city councils – Hutt, Porirua, Upper Hutt and Wellington – for their supply to consumers. We:

- operate four water treatment plants, 15 pumping stations and 183 kilometres of pipeline
- supply around 150 million litres of water daily on average – 1,730 litres every second – to meet the needs of about 380,000 people
- target at least an 'A' grade quality standard for our water treatment plants and distribution system, where consistent with customer requirements
- forecast future water needs and plan so those needs can be met at an acceptable cost to the community
- carry out our work with care for the environment, including promoting ways to conserve water and the benefits to the public of water conservation
- manage infrastructure assets with a replacement value of $558 million[1]

The amount of water we supply every week could completely fill Wellington's Westpac Stadium.

Governance and organisation structure

The Wellington Regional Water Board Act (1972) defines Greater Wellington's bulk water supply role. Regional councillors are responsible for setting policy. Greater Wellington's Regional Sustainability Committee oversees the bulk water supply work carried out by its Water Supply, Parks and Forests division. Greater Wellington Water is organised into four main functional areas: Water Supply (managing and operating the current supply assets, including production, distribution, asset management, engineering design, system modelling and compliance with quality and environmental standards); Development and Strategy (managing strategy, planning and investigations for new water sources and associated infrastructure); Marketing (including customer reporting and water conservation strategies); and Support (financial, administrative and secretarial services). Greater Wellington Water uses contracted, independent water quality testing services.

Performance indicators

We have five long-term performance indicators (PIs) for bulk water supply, encompassing water quality, security of supply, environmental management, customer service, business efficiency and health and safety. Each PI has related objectives and targets. Objectives for each PI and performance against short-term targets for 2008/09 are published from page 31.

Greater Wellington's 10-Year Plan 2009-19 includes annual targets for each PI for the next three years (to 30 June 2012). The ten-year plan incorporating the 2009/10 Annual Plan is available on Greater Wellington's web site or by contacting us (see outside back cover for details).

Management systems

Our quality management system is certified to the international standard ISO 9001:2000. Our environmental management system is certified to ISO 14001:2004. An independent entity audits these management systems annually.

1. At 30 June 2008, following the most recent independent valuation.

Business performance

Where highlights are preceded by a coloured triangle, more information on this subject appears in the following section of the report, preceded by a matching triangle.

WATER SUPPLY VOLUME

- 2008/09 has seen the lowest annual supply total since 1999/2000

  Average daily supply was 148.6 million litres
- Gross supply per resident 388 litres per day
- Residential supply estimates by city average 240 litres per person per day
- Peak day supply 186.2 million litres; 25% more than the average day

Total water supply for the year was 54,228 million litres (ML), a decrease of 2.5%[2] compared with 2007/08 and the lowest annual total since 1999/2000. Weather conditions during spring and summer were much less challenging than a year earlier and the economic downturn may also have influenced this outcome.

All four of the cities we provide water for contributed to lower usage. Average daily supply for Lower Hutt was 2.3% lower year on year, for Porirua it was 2.5% lower, for Wellington 2.6% lower and for Upper Hutt 2.9% lower.

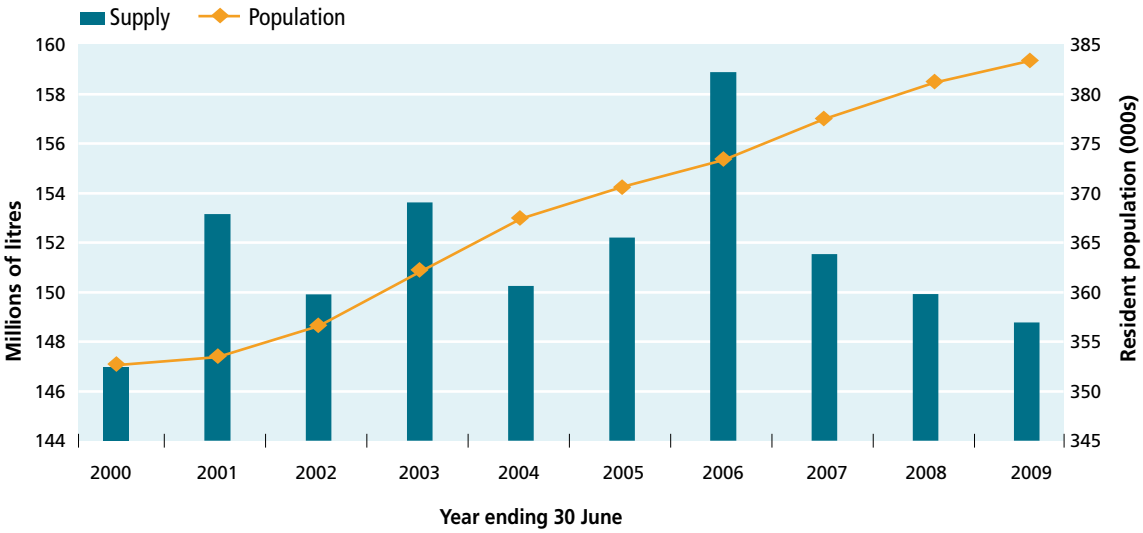
Gross supply per resident[3] was 3% lower year on year overall, at 388 litres per person per day (L/p/d). Gross supply per resident for Lower Hutt was 2.2% lower year on year (374 L/p/d), for Porirua it was 2.6% lower (338 L/p/d), for Upper Hutt 3.1% lower (359 L/p/d) and for Wellington 3.5% lower (413 L/p/d).

Estimated domestic water use There has been considerable interest recently in how much water people use within homes in our supply area. Most local households are not metered individually, so our city council customers do not have precise figures for household water use. City council estimates[4] of domestic water use are: Lower Hutt 250 litres per person per day (L/p/d), Porirua 230 L/p/d, Upper Hutt 240 L/p/d and Wellington 230 L/p/d.

Peak supply The average day of the peak week supply was 174.2 million litres, while the peak day was 186.2 million litres, on 4 February. This year saw the lowest peak day supply volume during the last decade.

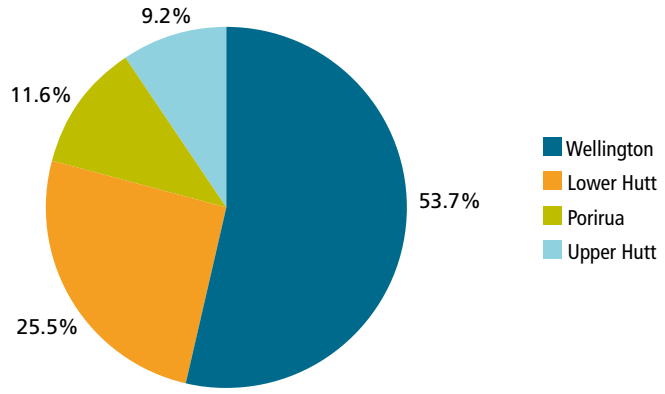
For more water supply statistics see pages 27-28.

AVERAGE DAILY SUPPLY AND POPULATION

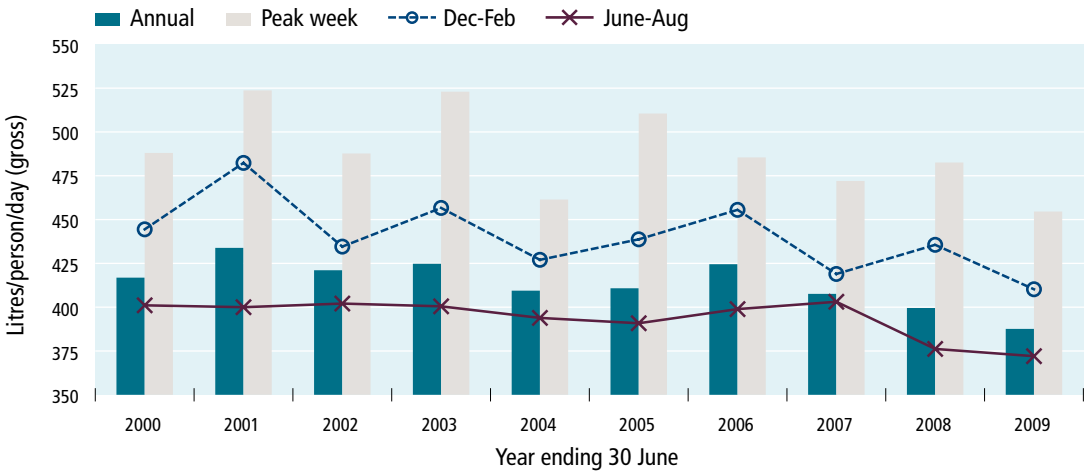


2. The decrease is 2.3% after allowing for 2007/08 being a leap year.
3. Total supply for all purposes divided by estimated resident population. This tends to be higher for cities with a relatively high proportion of non-domestic water use, such as Wellington.
4. Estimates provided by Capacity (for Lower Hutt, Upper Hutt and Wellington) and Porirua City Council. Figures are provided as accurate to within +/- 30 L/p/d.

SHARE OF ANNUAL SUPPLY BY CITY

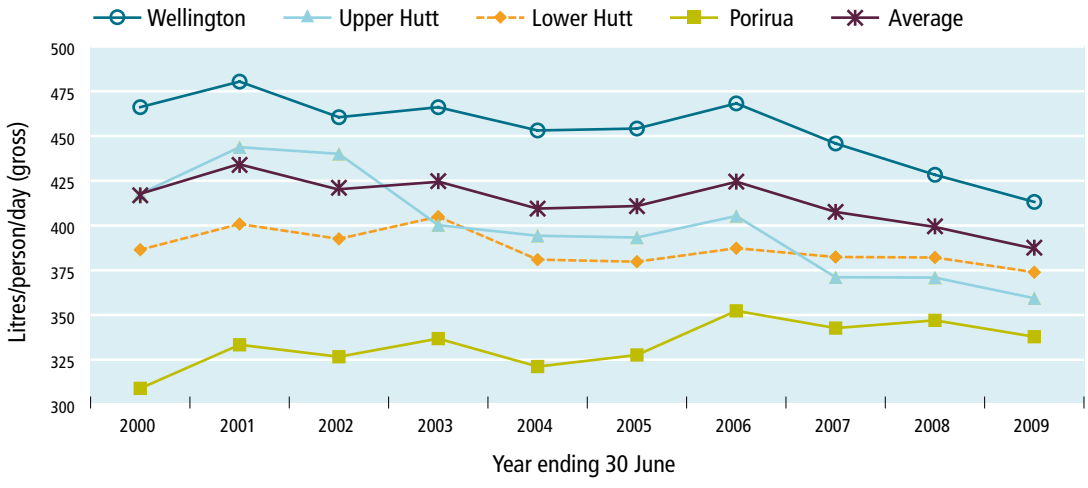


WATER SUPPLY PER RESIDENT



The trend in annual average water supply per head of resident population for the greater Wellington urban area as a whole is decreasing gradually. This trend is also evident for summer and winter average use, and for peak week average use (above). Of the four cities we supply, only Porirua shows an increasing trend in annual average water supply per resident, but their supply per resident remains at a lower level than for our other customers (below).

WATER SUPPLY PER RESIDENT BY CITY



FINANCIAL SUMMARY

- Operating costs $25.8 million; deficit $0.1 million; total debt $42.3 million; interest charges $3.5 million
- Assets valued at $322 million; total liabilities $47 million
- Levy held at $26.4 million for 2009/10[5]
- Capital works spending 1.4% below budget
- Favourable cost comparison with Auckland

- Our operating deficit of $0.12 million was $1.34 million better than budgeted. Total operating costs were 2.6% below budget, at $25.8 million. Interest costs were held – slightly below budget – at $3.5 million. Debt was reduced to $42.3 million at 30 June 2009, $0.4 million less than a year earlier. (QMS target 4.2.3, page 36)
- **Assets valued at $322 million** A revaluation of our water supply assets was completed in December. The replacement-cost valuation was $558 million (at 30 June 2008), with a depreciated net book value of $322 million (at 31 December 2008). The increase in asset book value following revaluation was $48.3 million, which equates to approximately 17.5%. Since the last full revaluation, in 2004, the replacement cost has increased by a quarter.

  As a result of revaluation, the replacement cost of the Stuart Macaskill Lakes has been reduced to $43 million: 56% of the previous (2004) valuation amount. A 1999 valuation of the lakes was found to be overstated significantly and this was compounded by inflation adjustment of the 1999 amount for the 2004 valuation. (QMS target 4.2.2, page 35)

Asset lease income Agreements were reached with two parties for their use of water supply assets in exchange for licence fees.

A long-term agreement with a one-off fee was reached with the New Zealand Transport Agency. The agency plans to use an abandoned section of water main between Ngauranga Gorge and Petone as a communications duct. From July 2008 Citylink Ltd has shared the use of a water supply communications duct between Thorndon and Petone, for an annual licence fee.

These revenues are relatively modest, but help to offset rising water supply costs.

- **Water levy held** The bulk water levy for 2009/10 was held at $26.4 million[6], the same value as for 2008/09. As the following graph shows, levy increases have been tightly controlled over the last decade.

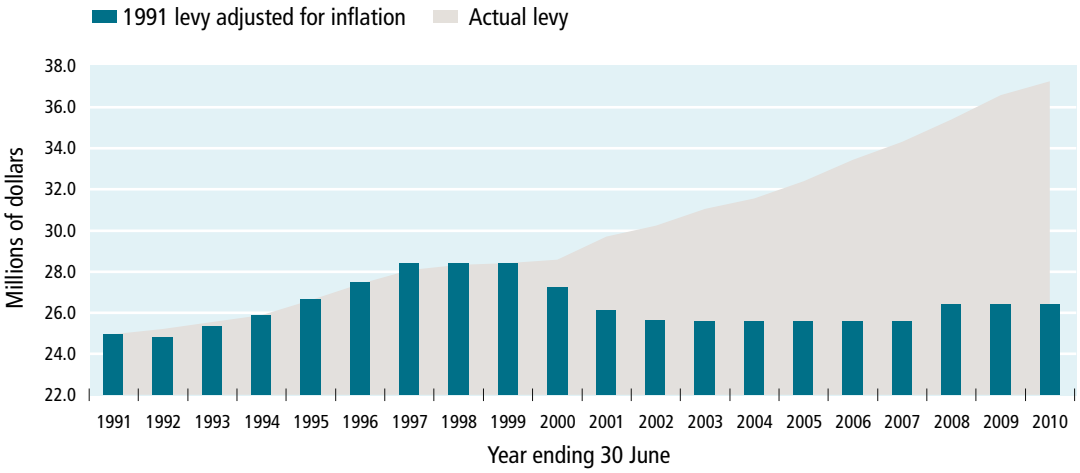
  Costs are set to rise over coming years as supply development projects are started to enhance security from water shortages (see 'Long-term planning', page 8).

  It is pleasing to report that public debt has been cut by more than a third (36%) over the last 10 years. It now stands at $42.3 million, $23.4 million less than at 30 June 1999.
- **Capital works** Spending on capital works was $4.938 million, a net $69,000 under budget (1.4%). Of 107 projects in the capital works programme, 90 were completed, 11 are scheduled over two or more years and remain in progress, four were rebudgeted into 2009/10 and two were deferred.
- **Cost comparison with Auckland** The bulk water supply levy charged to our four city council customers equated to 43.3 cents per thousand litres of water supplied. This unit cost compares favourably with that for Watercare Services, the bulk water supplier for the greater Auckland urban area. A graph comparing costs can be found on page 48. (QMS target 4.2.9, page 36)

5. GST inclusive

6. GST inclusive

WATER LEVY AND INFLATION



The water levy for the year to 30 June 2010 has been set at $26.4 million; the same level as for the last two years. This is the 12th time in 13 years since 1997 that the water levy has either been held or cut. If the levy had increased in line with inflation over the last 20 years, it would now stand at just over $37 million or 41% more than the actual figure. (CPI figures are 12 months to 31 December – year to December 2009 estimated at 1.82%. Source: Asia-Pacific Risk Management)

SECURITY OF WATER SUPPLY

- Reservoir level and supply pressure targets largely met
- All demand for water easily met
- New drought management plan trialled
- Flu pandemic plan activated
- Regional water strategy receives support
- Feedback received on development options

Reservoir level and supply pressure Maintaining high water levels in reservoirs provides communities with the maximum available buffer to cope with peaks in water use – for fire fighting for instance – and short-term loss of supply to the reservoir.

We manage water levels for 44 customer reservoirs at 39 sites in accordance with twin targets for storage above set levels for each reservoir and month. For the year in review, actual performance was 97% and 98%; 100% is required to achieve each target. Where we did not achieve the targets, failure of level or pressure transmitters and replacement of inlet pipe-work and controls were significant factors.

Our supply to Thorndon feeds directly into Wellington's central business district. We fully met our target to maintain pressure at Thorndon between 80 and 100 metres head for at least 98% of the time. However, we did not achieve pressure above 85 metres head for at least 90% of the time for October and November. The problem behind this underperformance was rectified in November.

Pressure and reservoir level targets are self-imposed. (QMS targets 1.2.1 and 1.3.1, page 34)

Water transmission efficiency The difference between the metered volumes of water treated and water supplied was 1.2% of the treated volume. This is higher than in recent past years, with the result typically less than 1%. While the 1.2% difference is within the operational tolerance margin for our meters (+/- 2%), we will monitor efficiency data closely over the coming year, to assess whether this result represents an anomaly or an emerging trend. (EMS target 4.1.1, page 38)

Meeting demand for water The greatest demand for water each year typically occurs during the summer, between December and March. Years with low rainfall and low river flows during summer make the unrestricted supply of water more difficult.

The summer of 2009 proved less challenging than most during the last decade and all demand for water was easily met. A wet February and fairly regular rainfall events throughout the summer appear to be significant contributing factors.

Our peak-day supply was 186 million litres, the lowest peak day during the last 10 years. Daily supply between December and March averaged 156 million litres, its lowest level since 2001/02.

Drought management plan We made first use of a new multi-stage water restriction plan, which refers to various indicators of potential water shortage. Most notable among these is a 90-day storage forecasting tool developed for us by NIWA. The plan, which incorporates a drought management communications component, was developed in-house and agreed with our customers following the very dry summer of 2007/08.

Although supply and demand conditions last summer did not fully test the plan, a useful outcome was an overall increase in publicity about the basic watering restrictions employed by our customer city councils. Our research suggests greater awareness of restrictions is necessary to increase involvement in conserving water by the public.

Experience of using the plan last summer helped to identify a number of improvements, which have since been adopted. We anticipate that more demanding conditions will generate further issues to be resolved, but believe the plan represents an enhancement to drought management preparedness for the greater Wellington urban area.

Pandemic plan In response to the threat of bird flu in 2005 we developed plans to cope with an influenza pandemic. The identification of the H1N1 'swine flu' virus in New Zealand earlier this year has resulted in a review of these plans for the specific circumstances of swine flu, with reference to Ministry of Health and World Health Organisation guidance.

The World Health Organisation uses a multi-phased planning approach, moving from preparedness in the early stages to response and mitigation efforts. From this we adapted a four stage plan, with stage three (our peak mitigation phase) aligned with the World Health Organisation's response phases and dependent on local cases of infection being identified.

From mid June we moved to stage three of our response plan, including enhanced hygiene practices, limiting staff contact with visitors to essential functions and monitoring daily for flu symptoms among staff, their family and friends, and suppliers.

During the April-June period we saw a higher than usual level of sick leave due to suspected flu symptoms. However, operations were not unduly affected. At our year end we had no immediate expectation of changing our level of response.

LONG-TERM PLANNING – INTRODUCTION

Our aim is to manage the bulk water supply system so that water shortages should not occur more than once in 50 years on average: an annual shortage probability of 2%. This standard – agreed with territorial authority customers – is deliberately conservative, given that the consequences of water shortage can be severe. In 2005 we recognised that our system was approaching that security threshold more quickly than previously predicted, due to rapid population growth, and started planning our response.

Last year we noted that an upgrade of our sustainable yield model had resulted in the annual probability of a water shortage being revised upwards to 3.6%, or once in 28 years on average. Due to population growth this probability has grown to 3.9%, or a one in 26-year risk of shortage.

In May 2008 Greater Wellington approved the Bulk Water Supply Development Strategy for consultation. The strategy aims to quickly return security of supply to a risk level of 2%, by a series of relatively modest system enhancements, and ensure that level is maintained into the future.

Security can be addressed by developing new water sources, or by reducing the amount of water that must be supplied for a given population. Measures such as supply pressure management, reducing losses from leakage, harvesting rainwater from roofs and consumers using water more efficiently could all contribute to reducing supply needs.

The development strategy proposes a dam on the Whakatikei River to maintain security of supply for the long term. However, this project could be deferred if water demand was reduced. Measures to improve water use efficiency and conservation are being explored with our customers. Progress during the last year is described below.

Without action, the risk of water shortages will continue to increase as our population grows. If the probability of shortage were to exceed about 7% (a one in 15-year risk on average) the water supply system for greater Wellington would become very difficult to operate without severe constraints on discretionary water use during summers.

In the last 12 months we have been greatly occupied with advancing investigations and consultation about short-term options to increase supply as well as an appropriate balance between supply and conservation measures for the longer term.

▶ REGIONAL WATER STRATEGY

Greater Wellington has a direct water supply role only for the region's four cities. However, its environmental management and economic development responsibilities cover the whole of the Wellington region.

With this wider role in mind, and prompted by the impending need to address long-term security of supply for the metropolitan area, Greater Wellington proposed in 2008 that a region-wide water strategy be developed jointly with the region's eight city and district councils.

The aim of this approach is to bring decision making about all water management issues within a common regional framework. Water supply, stormwater and wastewater functions would be managed within a holistic policy within catchments, to address key issues around water quality, allocation and use.

While this approach found favour in principle, consultation conducted on behalf of Greater Wellington during the year has highlighted that the immediate priorities facing the territorial authorities of Wairarapa, Kapiti and the greater Wellington urban area differ. The challenge for all parties in the coming year remains to marry our respective short- and long-term objectives into a cohesive and effective strategy. (QMS targets 1.1.1 and 1.1.2, page 34)

▶ CONSULTATION – WATER SUPPLY OPTIONS

Bulk Water Supply Development Strategy

By December we had received feedback from all customer councils about the Bulk Water Supply Development Strategy, which Greater Wellington had approved for consultation in May 2008.

No single approach was agreed to by all, with one or more customers either expressing concern about or not supporting each of the development options. However, the majority did support further consideration of supply development options alongside those for demand management.

The projects outlined in the Bulk Water Supply Development Strategy are all included in the capital funding confirmed in Greater Wellington's 2009-19 10-year plan (LTCCP), with borrowing to build a dam timed from 2018/19 (although design and consent

application preparations would need to start several years earlier). The Upper Hutt aquifer and the Whakatikei dam could both be deferred for many years by concerted implementation of demand management, with the city councils taking a leading role. However, effective measures would need to be widely adopted throughout the community to achieve a worthwhile deferral.

The 10-year plans recently adopted by our customers indicate little new investment in programmes to improve water use efficiency and promote conservation over the next decade. The city councils can revisit their budgets for these measures in future years, but their preference is that any such decisions occur with reference to an agreed long-term water strategy. (QMS targets 1.1.1 and 1.1.2, page 34)

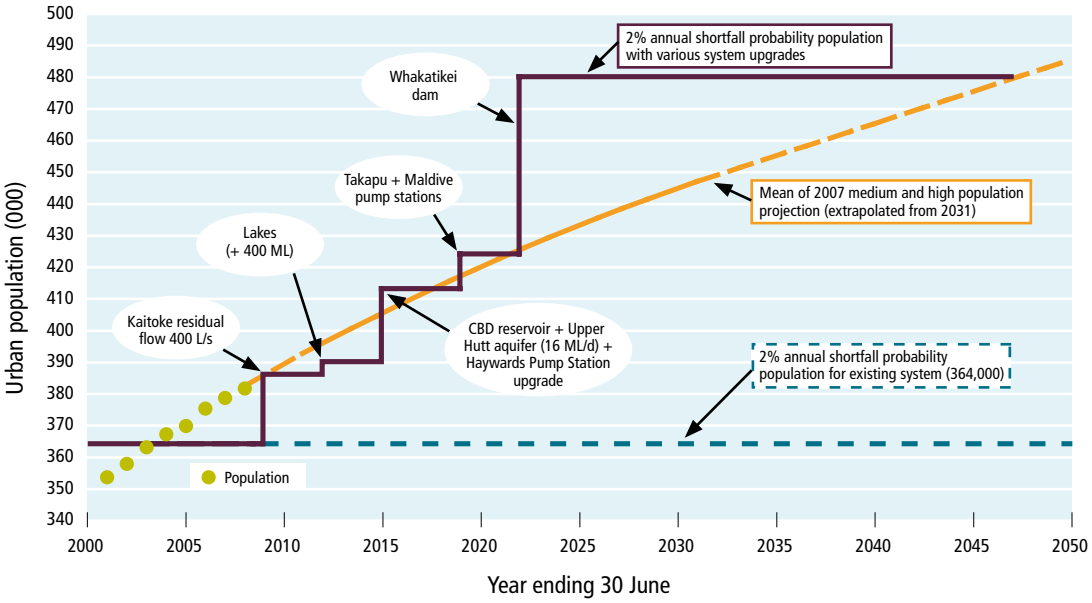
Ten-year plan consultation A demand management approach to securing security of water supply was preferred by a majority of submitters to our proposed LTCCP.

Greater Wellington received 116 submissions relating to water supply matters, with 68 (59%) in favour of conservation or leak detection measures. Of those, 20 submitters favoured household water metering, while 26 opposed it.

Twenty-six submitters (22%) were in favour of new water supply development, whether in general or for specific projects; 17 of those (65%) expressed support only for supply-side options while nine (35%) backed both supply and conservation options[7].

This feedback will be considered in discussions about the proposed regional water strategy, although it must be noted that the number of submitters was very small relative to our supply population. (QMS targets 1.1.1 and 1.1.2, page 34)

TIMING OF WATER SUPPLY DEVELOPMENT



Greater Wellington's 10-Year Plan 2009-19 includes funding for several supply development projects to restore and then maintain an annual risk of water shortage of no more than 2%. This timing assumes continuing growth in population and water use. Discussions are in progress about a regional water strategy, which could include measures to curb the growth in supply volumes and so defer the timing of development projects.

7. The remaining 22 submissions either called for more information about specific projects or addressed other aspects of water supply.

DEVELOPMENT PROJECTS – SECURITY OF WATER SUPPLY

- Increased Hutt River water take investigations completed
- Increased Te Marua storage investigations progressed
- Shared Wellington reservoir proposal deferred
- Upper Hutt aquifer water quality assessed
- System recovery benefit from Whakatikei dam assessed

- **More water from the Hutt River** Since 2001 our resource consent to take water from the Hutt River at Kaitoke has required that we leave a minimum of 600 litres per second flowing past our intake weir at all times. Prior to 2001 there was no minimum requirement. We have proposed reducing the residual minimum flow to 400 litres per second, which would provide up to 17 million litres more water daily for supply. This change could be introduced quickly and at negligible cost if a change to the consent conditions were granted.

  During the year, we completed a preliminary assessment of environmental effects together with a draft consent application for reducing the residual flow. This work included scientific assessment of the impact that an increased water take might have had during the recent drought of summer 2008. We have also drafted a low-flow management plan for the river, with a hierarchy of measures to mitigate reducing flows, which we intend to propose as a new condition of consent.

  These documents and studies have been developed in discussion with key stakeholders including Fish and Game New Zealand, the Department of Conservation, Greater Wellington's Environmental Management division and iwi. A cultural impact assessment of the proposed change in consent conditions was also completed; this is generally supportive of our proposal but also encourages efficient use and distribution of water.

  The process of identifying areas of concern, conducting further investigation and re-consulting has been time consuming, but we believe we have now addressed all the issues raised. At 30 June 2009 we were finalising the content of a consent application and assessment of environmental effects. A final decision about whether we submit the application is still to be made.

  This project is the most significant of the short-term options to restore and maintain security of supply while a long-term water strategy is agreed. Whether or not we can secure the change being sought to consent conditions should be known in the coming year. That decision will have a major bearing on the timing of other development projects and on the time available for conservation and efficiency measures to deliver the results needed to defer a dam. We also anticipate that it will have a major bearing on the measures needed to manage demand during coming summers, while a sealing membrane is added to the linings of the Te Marua storage lakes (see below). (QMS target 1.1.1, page 34)

- **More storage at Te Marua** Our development strategy proposed minor works to allow the top water level in the Stuart Macaskill Lakes to be raised. A feasibility study and initial design investigations in 2008 had indicated maximum storage could be increased by 400 million litres (13%), at an estimated cost of $4 million to $5 million. However, in the last year further technical studies by consulting engineers have identified a complication with significant cost implications.

  A review of the seismic performance of the lakes in relation to the requirements of new (2008) dam safety regulations found that movement of the Wellington Fault is likely to cause the embankments to settle and deform and the compacted clay lining to crack. There is a risk that this cracking will cause the lakes to leak and could lead to a progressive deterioration of the embankments and uncontrolled loss of water.

  After a fault movement, it may not be possible to drain the lakes quickly to a safe level, at which leakage is minimal. An uncontrolled loss of water could occur, which would contravene recent changes to the Building Act and dam safety regulations. In addition, loss of stored water following a major earthquake would mean the loss of a strategic water source at a time it was most needed.

  The proposed project to raise the top water level of the lakes does not cause or increase the risk of damage following a Wellington Fault movement. However, the work required to raise the lakes' walls is closely aligned with the measures required to improve lake security and doing both at the same time will achieve significant cost savings.

  Several options have been identified, from the minimum action needed to fully comply with the new dam legislation, to comprehensive work that would ensure full containment of storage, at a cost of up to $10 million. This sum is in addition to $5.5 million budgeted for increasing the lakes' storage capacity. Further analysis of the options will be completed in the

first half of 2009/10. In the meantime, funding of $10 million over the next four years has been included in our 2009-19 financial projections. (QMS target 1.1.2, page 34)

- **More storage in Wellington deferred** We have a shared interest, with Wellington City Council and the Capital and Coast District Health Board, in securing more treated water storage in the region's main population centre. Jointly funding a reservoir near Wellington Hospital was agreed in principle some years ago, but budget availability has proved a major obstacle for the health board.

  Wellington City Council – the lead agency for the project – held talks with central government in June about availability of funds under its infrastructure investment initiative to provide the health board's share of costs, but no commitment was received.

  The city council has recently decided to defer this project until the 2011/12 financial year. Accordingly we have adjusted the timing of this project in our 2009-19 financial projections, to match that of Wellington City Council.

  Greater Wellington continues to be concerned about the availability of water at Wellington Hospital following a major earthquake. (QMS target 1.1.2, page 34)

- **Developing the Upper Hutt aquifer** There has been a limited focus on this development option over the last year, as the costs associated with bringing it to fruition are substantial ($20 million to $25 million) relative to the other short-term options discussed above, notably securing a change of consent for taking water from the Hutt River. The timing of this project depends on the outcome of that initiative and the Regional Water Strategy deliberations in the coming year.

  The upgrade to our Sustainable Yield Model this year included calibrating it against the results from a detailed hydrological model of the Upper Hutt aquifer, prepared by independent consultants. This work allows for analysis of Hutt River flows with and without the aquifer development. Detailed modelling of the impacts of abstraction from the Upper Hutt aquifer will be undertaken in the coming year.

  A water quality testing programme for *Cryptosporidium* – as required by New Zealand's drinking water standards – was also completed. No *Cryptosporidium* or *Giardia* were detected in the aquifer water. However, full treatment of any water supply from this source will be required in order to meet the requirements of the Health (Drinking Water) Amendment Act 2007 and related changes to the 2005 edition of the drinking water standards. We have started work on a design report, which will recommend an appropriate treatment option. (QMS targets 1.1.1 and 1.1.2, page 34)

- **Whakatikei dam** Our four existing water treatment plants are all to the east of the Wellington Fault. A critical factor in adopting Whakatikei as our preferred site for a future water supply dam and treatment plant is its position on the western side of that fault line. This factor would provide a significant benefit – faster reinstatement of supply after a fault movement – particularly for Wellington and Porirua, which are also to the west of the fault. While this general benefit is recognised, the value of it is not yet quantified.

The Whakatikei River – looking upstream to a potential dam site

During the year, we commissioned GNS Science to model the impact of a Wellington Fault movement on our bulk water supply network. This work identified the probable number of breaks and approximate locations where pipe breaks or leaks are likely to occur from ground movement, shaking, liquefaction or landslide. We have prepared restoration plans and estimated the time needed to repair this damage, for both the existing bulk supply network and the network including a dam and treatment plant at Whakatikei.

The analysis shows that a limited water supply to Wellington could be reinstated two to three weeks earlier with the dam in place; the quantity of that restricted supply would also be greater, by almost a quarter. A supply to Porirua would also be available two to three weeks sooner.

We have commissioned consultants Business and Economic Research Ltd (BERL) to assess the economic and social benefits of this earlier reinstatement, assisted by GNS. The results will help to inform recommendations in relation to the Regional Water Strategy and development timing for this project.

The modelling by GNS will provide a useful basis for further planning of the response needed to repair the bulk supply system and our customers' reticulation networks after a fault movement earthquake. It will also provide emergency management agencies with the basis for reviewing their plans to cope with a shortage of water while networks are being repaired. (QMS targets 1.1.1 and 1.1.2, page 34)

SYSTEM RESILIENCE PROJECTS – SECURITY OF WATER SUPPLY

- Te Marua storage lake repair
- Risk management plan for Lower Hutt aquifer updated
- Ngauranga-Thorndon pipeline to improve supply security to Wellington
- Increased diesel storage at Waterloo
- Karori pipe deviation to avoid fault line
- Back-up supply connections – Karori and Timberlea
- Storage retention standpipes for Ngaio and Paremata reservoirs

Stuart Macaskill Lakes repair The northern storage lake at Te Marua was drained in April 2008 to repair an inlet pipe and inspect the lake bed and structures after it was heavily drawn down during the preceding summer.

We identified a failure of the flexible joint between the lake tower and surrounding apron. The repair proved challenging, both in identifying an effective method of repair and applying it during a fairly wet winter.

Refilling the lake was able to start in late November, with production from Te Marua eased back so we could maximise daily flows to storage. We achieved full storage by Christmas, ahead of our usual period of peak annual demand for water. (QMS target 4.1.3, page 35)

Having one storage lake unavailable for half the year had a detrimental impact on our chemical demand (see 'Chemical use efficiency', page 16).

The northern storage lake at Te Marua was empty until late November, to carry out repairs.

Lower Hutt aquifer well-field catchment risk The process of developing Public Health Risk Management Plans for our water treatment plants prompted a review of risk factors for the Waiwhetu aquifer. Our catchment risk assessment identifies many possible hazards, including industrial and commercial sites, substances in transit and stored chemicals. The most likely contaminants are solvents, hydrocarbons, agrichemicals and metals.

Monitoring wells at several points above the well-field were considered. However, it takes 13 months for water to flow from the Hutt River at Taita to the abstraction zone in the aquifer at Waterloo, so any contamination from the river would likely be diluted and dispersed before reaching our wells. Impermeable clay and water pressure within the aquifer protects it from surface contamination occurring nearer the wells.

We have instead decided to install quality monitoring equipment on the well-field flow to the Waterloo treatment plant, to analyse and record variations in water entering the plant. This instrumentation will be installed in the coming year. (QMS target 2.1.1, page 34)

In line with the region's Emergency Water Supply Mitigation and Preparedness Strategy and Action Plan (2003), we continued to develop physical mitigation and response measures, to reduce repair time for the wholesale water supply in the event of a large natural disaster, such as a movement of the Wellington Fault.

O-K main – Ngauranga to Thorndon The Orongorongo to Karori (O-K) pipeline dates from the mid 1920s. We are recommissioning a section of this main between Ngauranga and Thorndon to give additional security of supply to Wellington city.

When complete, this recommissioning will allow us to continue to supply higher pressure Te Marua water to Karori Pumping Station via Thorndon when the Ngauranga to Karori pipeline is shut off for maintenance. It will provide an alternative to the Wainuiomata main between Ngauranga and Thorndon. It may also assist with the restoration of water supply to Wellington following a movement of the Wellington Fault at Thorndon. The smaller 525mm-diameter O-K main should be easier to repair than the 1050mm-diameter Wainuiomata pipeline.

This year, new scour and branch valves have been fitted between Ngauranga and Thorndon. The remaining work to make this section of the O-K main live will be completed in 2009/10. (QMS target 1.1.2, page 34)

- **Diesel storage** We increased the diesel storage capacity at Waterloo treatment plant to ensure we hold sufficient supplies to operate for an extended period following a major failure of power supply to the plant. The back-up pumps for supply to Naenae and Gracefield are diesel powered.

  A double-skinned fibreglass tank with the holding capacity of 30,000 litres was installed. Dispensing pumps were also fitted to the diesel storage tanks at Waterloo, Te Marua and Wainuiomata treatment plants, to take advantage of lower costs of bulk purchase for running our vehicle fleet and ensure regular turnover of the diesel held for emergencies. (QMS 4.2.10. page 36)

We have increased our diesel reserve at Waterloo following the installation of a new storage tank.

- **Karori fault crossing mitigation** Karori is one of two gateways for our bulk supply mains into southern Wellington. Our pipeline from Karori to Aro Valley crosses the Wellington Fault three times – once within a tunnel – making it vulnerable to a fault movement and potentially very difficult to repair. We have designed a pipeline deviation, which will still cross the fault once, but at a point that should make it much easier to reinstate. We anticipate that this bypass could cut several weeks from repair times following a fault movement earthquake.

  Part of the deviation has been installed, with the remaining work timed for 2009/10. We had planned to start this project later next year, but brought work forward to co-ordinate with the replacement of service pipes for the Karori Sanctuary visitor centre.

- **Back-up supply connections** In 2004 we asked our customers to identify their need of, and possible locations for, emergency supply points. These would provide a direct supply from our distribution system to customer reticulations if normal supply via a reservoir was disrupted following an emergency. An ongoing programme of works has been developed from that request. We had expected to construct an emergency pumping station at the northern end of the Karori supply zone this year. However Wellington City Council's water services contractor, Capacity, requested consideration of alternative means to increase the security of supply to Karori.

  We have agreed to replace a relatively vulnerable section of the rising main from Karori Pumping Station to Karori's main reservoir with an underground crossing of Kaiwharawhara Stream. Design work commenced this year, with construction timed for March 2010. Capacity also requested that we provide a direct pipeline link from Karori Pumping Station into the Kelburn supply zone, which can be connected to the Karori zone. This proposal is being considered.

  In August we completed an emergency connection to the Timberlea Pumping Station in Upper Hutt. This is the third emergency connection provided to Upper Hutt City Council's reticulation over the last four years.

- **Reservoir standpipe installation** We are halfway through a six-year programme of fitting inlet standpipes to service reservoirs where a break in the supply main between the non-return valve and the reservoir could result in stored water being lost. This year we installed an inlet standpipe at Paremata No.2 Reservoir (Porirua) and an isolation valve on the inlet to Ngaio Reservoir (Wellington).

  Mechanical couplings were also installed on the outlet to our Haywards Reservoir, greatly reducing the risk of pipe failure in an earthquake. Haywards provides storage in the bulk supply network for both Porirua and northern Wellington.

WATER QUALITY

- Drinking water standards compliance achieved
- Public Health Risk Management Plans completed; Government defers compliance deadline
- International recognition for water organics removal developments
- Source and treatment gradings maintained

- **Compliance with drinking water standards** Our records show that we achieved full compliance with New Zealand's drinking water standards for the year to 30 June 2009. Hutt Valley District Health Board's Drinking Water Assessment unit has provisionally confirmed this result, covering chemical and microbiological compliance for water leaving our treatment plants and within the bulk water distribution system. We expect this result to be confirmed in due course. (QMS targets 2.1.1-2.1.3 and 2.2.1-2.2.3, pages 34-35)
- **Public health risk management** The Health (Drinking Water) Amendment Act came into force on 1 July 2008. The Act required large water suppliers to prepare public health risk management plans (PHRMPs) for their water supplies by 30 June 2009.

  Our first plan, for the Waterloo source and treatment plant, was approved by Regional Public Health on 31 March. The assessor noted *"Greater Wellington has obviously placed significant expertise and resource into the development of the plan…"* and went on to commend our submission of the plan via web browser as *"progressive"*. Plans for our three remaining water treatment plants were submitted in June.

  On 24 June 2009 Health Minister Tony Ryall announced that the Government had delayed compliance timing for submitting PHRMPs, in recognition of local body concerns about the burden to ratepayers from the legislation. Plans are not now required to be in place until July 2012. We are awaiting confirmation from Regional Public Health about the status of our three plans still to be approved.

  Revised drinking water standards The Drinking-water Standards 2005 (Revised 2008) were released mid-July 2008. The changes are largely to clarify, correct or simplify compliance procedures, tidying up areas of concern that were raised with health officials by the water industry through consultation. The changes have had only a very minor impact for us, but will simplify compliance in the distribution network.

  Reservoir contamination response We provided support to Hutt City Council in October following an *E.coli* contamination alert at its Naenae reservoir. Water supplied to Lower Hutt is not routinely chlorinated, at the city council's request. However, we were able to start emergency disinfection within a few hours of being alerted of the problem and supplied water directly into the Naenae zone while the reservoir was isolated and drained for investigation and repair. This event has proved a useful test of one aspect of our incident management plans. It is pleasing to report the speed of our response. No sickness was linked to this contamination alert.
- **Monitoring and removal of organics** In March we received a visit from Professor Gregory Korshin, a leading expert in the identification and treatment of organic matter in drinking water sources. Professor Korshin has co-authored six books for the American Water and Waste Association's research foundation and is a member of the United States' Environmental Protection Agency's drinking water committee.

  The purpose of his visit was to look at some of our developments in the monitoring of organics and the automation of processes to optimise their removal, as reported in our 2008 annual report (Coagulant 'feed forward' dosing control). Professor Korshin observed that we are years ahead of anyone else in the world in this field and welcomed the opportunity to be involved in our future investigation work. We are considering this offer seriously.

  In April we hosted representatives from the South East Queensland Government and Queensland's bulk water transport authority to share our experience in using this ground-breaking technology (see 'Coagulant control – Te Marua', page 19).
- **Risk and quality grading** We retained our Ministry of Health gradings over the last 12 months, namely 'A1' grading for both the Te Marua and Wainuiomata treatment plants, 'B' grading for Waterloo and 'U' (ungraded) for our standby treatment plant at Gear Island. The 'a1' grading for each of our three bulk water reticulation zones was also maintained. (QMS targets 5.2.1 and 5.3.1, page 36)

  During the year we started to assess the requirements for an 'A1' grading for Gear Island against the updated (2008) drinking water standards. We expect to complete that process in the coming year. (QMS target 5.4.5, page 36)

USE OF RESOURCES

- More water from sources, due to storage lake refill. One breach of related consent conditions
- 95% of water taken measured as productive use
- Energy use per litre improved 1.3%
- Chemical use per litre higher due to raw water for treatment at Te Marua
- Energy reduction targets adopted
- Short-term energy contract reflects emissions trading scheme uncertainty

We are committed to operating in an environmentally responsible manner, consistent with the Resource Management Act 1991 (RMA) and providing high quality water at a reasonable price. The main impacts of our operations on natural and physical resources relate to water take, energy and chemical use, discharges and the disposal of waste.

Environmental management standards We retained accreditation to the environmental management standard ISO 14001:2004 following a biennial audit of our Environmental Management System. Only minor improvements were recommended. (QMS target 7.1.1, page 36)

- **Water from sources** We abstracted 59,669 million litres; 1.9% more than during 2007/08. The reason for higher abstraction but lower production year on year was largely the result of refilling the northern storage lake at Te Marua during November and December after repairs. Total lake filling exceeded pumping from the lakes by 2,757 million litres.

  We fully complied with the conditions of nine of our 10 consents to take water. A preliminary compliance assessment from the consent manager notes a single breach of abstraction conditions from the Orongorongo River and its tributaries. The requirement to retain a residual flow of at least 100 litres per second downstream of these abstractions was not achieved for a short period on 22 January, resulting from an air valve becoming jammed open between the abstraction point and abstraction flow control equipment. We are continuing to investigate the cause of this fault with the valve supplier, as a physical examination of the air valve proved inconclusive. Our records show this breach of consent lasted for 10 minutes. (EMS target 1.3.1, page 37)

- **Metered use of water take** We report annually on the difference between the volume of water taken from rivers and aquifers for public supply and the treated water leaving our treatment plants, plus or minus the change in storage at Te Marua, as an indication of whether the unmetered use component of our water take is increasing.

  This year, 94.5% of our water take was measured as either being treated for supply or used to increase or refresh the reserve of untreated water in the Stuart Macaskill Lakes. Conversely, unmetered use of our water take – flushing of source-to-treatment water mains, production process water, evaporation from the lakes and any real or apparent losses between our intakes and production meters – accounted for 5.5% of the total take, compared with 6.0% during 2007/08.

  Last year we noted that most unaccounted-for raw water appeared to be 'lost' between Kaitoke Weir and the distribution main from the Te Marua treatment plant. We suspect that some of this loss is due to inaccuracies with data transmission from intake to plant and scaling issues between different system control and data recording hardware. We will reassess this once the control system upgrade for Te Marua is complete. (EMS targets 4.1.1 and 4.1.2, page 38)

CHEMICAL AND ENERGY USE

Our electricity requirement for water treatment and distribution is broadly equivalent to that used by 2,000 average households and represents about 8% of total operating costs.

Historically, around two-thirds of our annual power use occurs at three sites: the Waterloo treatment plant (40-45% of total kilowatt hours), the Waterloo well field (about 10%) and the Te Marua Pumping Station (about 16%). Power use efficiency – kilowatt hours per million litres treated (kWh/ML) – is therefore influenced largely by the share of total supply pumped from the Waiwhetu aquifer at Waterloo, how much raw water treated at Te Marua is pumped from the Stuart Macaskill Lakes to the treatment plant, and how this pumping is managed.

Chemical use efficiency – kilograms per million litres treated (kg/ML) – is influenced by how much of our total production comes from river sources (which require more treatment than our aquifer source), how much water we treat from storage and variations in raw water quality associated with climatic variability. Treating river water has a higher chemical demand, with associated impacts from chemical production and transportation. Treating river water also generates solid and liquid waste, which we must dispose of.

We don't have the means to quantify the relative environmental merits of production from rivers and the Waiwhetu aquifer. Given this uncertainty, our approach is to produce water at minimum marginal cost, subject to meeting our obligations under the Resource Management Act and organisational carbon emissions reduction targets, and taking a conservative approach to security of supply. (QMS target 4.2.9, page 36)

- **Energy use and efficiency** Electricity used to treat and distribute water was 18.4 million kilowatt hours (kWh): 4.3% less than during 2007/08. This usage equates to 344 kWh per million litres of water treated; an improvement in efficiency of power use year on year of 1.3%.

  Share of production from aquifer-source treatment plants was slightly higher year on year (up 0.7 percentage points). However, for Waterloo's well-field and treatment plant combined 1.8% less electricity was needed per litre of water treated and pumped.

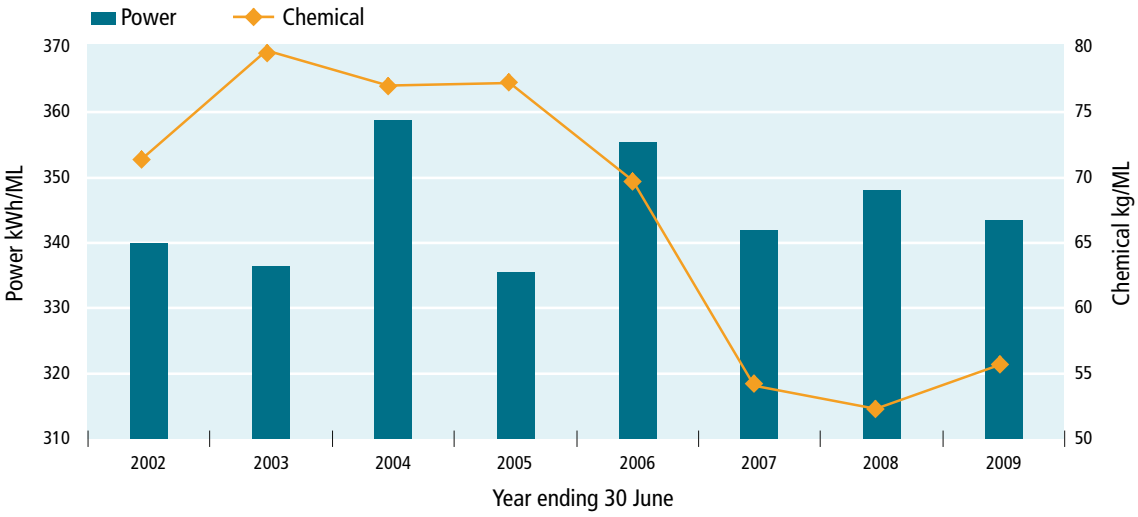
  Power use per litre of water treated improved year on year for the Wainuiomata treatment plant, but was worse for the Te Marua treatment plant, reflecting the condition of raw water for treatment (see also 'Chemical use efficiency').

While the share of production from lake storage pumped back to Te Marua was 1.5% less, pumping from the lower (southern) lake increased year-on-year, due to the northern lake being out of service in the first half of the year. Power use per litre for lake pumping was 3% higher year on year. (EMS target 4.2.1, page 38)

- **Chemical use efficiency** On average we used 6.5% more chemical to treat every litre of water we supplied last year. This outcome was significantly affected by the northern storage lake at Te Marua being unavailable for six months while repairs were undertaken (see 'Stuart Macaskill Lakes repair', page 12).

  With storage effectively reduced by half and relatively high power costs related to pumping stored water from the lower (southern) lake, we opted to treat river water of less favourable quality than would normally be the case. This resulted in an increased chemical demand to maintain a high standard of treated water and more solid waste from the treatment process. While chemical use per litre of production was lower year on year at Wainuiomata (2.1%) and Waterloo (3.2%), it was 12.6% higher at Te Marua.

POWER AND CHEMICAL USE TRENDS



Use of treatment chemicals per litre of production has been trimmed by around 30% over the last five years, while power use per litre has remained broadly unchanged.

Energy reduction targets adopted An increase in westerly weather systems over New Zealand is forecast as a result of climate change, particularly in winter and spring. The implications of this for the western side of the Wellington region (including our water catchments and the greater Wellington urban area) include an increase in damaging winds, rainfall and flooding during those seasons[8].

Greater Wellington joined the Communities for Climate Protection™ – New Zealand Programme[9] in 2007, with the goal of taking action to reduce its corporate greenhouse gas emissions and those of the communities it serves. Of current emissions attributed to Greater Wellington, some 80% are from electricity use, and roughly three-quarters of that is from the treatment and supply of water.

In April 2008 Greater Wellington adopted emission reduction goals for bulk water supply of 15% by 2012, rising to 35% by 2050. We expect hydro-generation developments at our water treatment plants to deliver a 15% reduction in electricity use from non-renewable sources by 2012, thus achieving the shorter-term target (see below).

POWER USE TREND

Financial year	Power use (MWh)	kWh per ML
2008/09	18,421	344
2007/08	19,241	348
2006/07	19,215	342
2005/06	20,602	356
2004/05	18,588	336

Electricity supply contract Our current electricity supply agreement, with Meridian Energy, expires on 30 September 2009. In May we invited tenders for a 'fixed price variable volume' supply agreement for a three year period. Tender responses and industry comment indicate great uncertainty about how New Zealand's Emissions Trading Scheme will operate, with tenders accordingly priced well above current contract rates. We have retendered for a period of one year only. This should allow time for the electricity market to adjust to the introduction of the Emissions Trading Scheme and ensure we are not locked into unrealistic electricity rates.

8. Separate modelling of potential changes in flows for our water-source rivers by NIWA has shown a trend to slightly drier summers and wetter winters across all climate change scenarios.
9. http://iclei.org

PROJECTS – RESOURCE USE EFFICIENCY

- Power generation from lake filling at Te Marua near completion
- Consultation started for power generation at Wainuiomata
- Power generation trial at service reservoir
- System optimiser (stage two) delayed
- Sodium hypochlorite generating plant built
- Te Marua coagulant dose control shows 14% saving
- Waterloo lime system shows 12% saving

Power generation – Te Marua A project to convert the two 'lake to lake' water transfer pumps to turbines and generate electricity when the Stuart Macaskill Lakes are being filled is very near completion.

Based on a detailed analysis of the flow available from Kaitoke Weir to the lakes, the generation potential is expected to be of the order of 950 megawatt-hours (MWh) annually on average, representing almost a third of total power use at Te Marua Pumping Station for the current year. Assuming an energy cost of nine cents per kilowatt-hour and that all power generated can be used at Te Marua for boost pumping, the expected energy cost savings is in the order of $85,000 annually. This value would increase as the unit cost of energy rises. The project cost of $279,000 gives an estimated payback period of 3.3 years. Any power generated while the treatment plant is off line will be exported to the local distribution network at a fixed price. We expect the 'pump as turbine' project to be fully commissioned by the end of September 2009. (EMS target 4.2.5, page 39)

Last year we reported that consultants had identified multiple power generation options from the transmission of water between Kaitoke Weir and Te Marua. Following that assessment, MWH New Zealand was commissioned to investigate options that would optimise electricity generation opportunities while complementing the 'pump as turbine' project.

Their report, received in June, indicates two options worthy of more detailed investigation. These would boost generation capacity to between 1,900 and 2,400 MWh annually, the higher figure equal to 12% of our total power demand for water supply this year. These options will be explored further in the coming year. (QMS target 4.2.4, page 36)

- **Power generation – Wainuiomata** The proposal to install a mini hydro-generator on the supply pipeline between the Orongorongo catchment and Wainuiomata treatment plant was approved in Greater Wellington's finalised 2009-19 ten year plan.

  The hydro-generator will utilise the approximate 90 metres head of water that is currently dissipated by pressure relief valves. It will be capable of producing around 300 kilowatts of electricity, which is more than sufficient to meet the operating needs at the treatment plant in most circumstances. To maximise electricity production, we will need consent to discharge water not needed for supply into lower George Creek.

  Consultation with stakeholders about impacts of discharging Orongorongo water into George Creek has begun, with assistance from our consultants. Iwi representatives visited the proposed site in May and their initial response was positive. A cultural impact report has been received, which is supportive of the project.

  A trial to confirm water flow and pressure will begin shortly after our year end, followed by design and equipment purchase. Construction and commissioning of the project is programmed for completion in 2010/11. (QMS target 4.2.4, page 36)

- **Hydro-generation at service reservoirs** We received funding from the Energy Efficiency and Conservation Authority for a trial hydro-generation development on the inlet main to a reservoir servicing Porirua. This site is one of five service reservoirs identified in 2008 as suitable for hydro-generation, with a total generation potential estimated at about 1,000 MWh per year.

  A feasibility trial has been completed, which showed a marginal cost-benefit outcome. Further investigations are planned for the coming year to see if the initial design can be refined for a better result. Developments in electricity pricing over the next few years to reflect New Zealand's impending adoption of greenhouse gas emissions reduction targets may also change our thinking on the value of this project. (QMS target 4.2.4, page 36)

Pumping station efficiency – Wainuiomata Last year we reported a new control valve had been installed on the supply main from Wainuiomata, at Gracefield. It was installed to prevent pressure surges, but was also delivering improved power use efficiency at our two pumping stations in Wainuiomata.

Comparing the last 12 months with our 2006/07 year shows combined kilowatt-hours per million litres of supply to those reservoirs over 22% lower for the current year. This gain equates to a like-with-like saving in power cost of almost $16,000 annually, based on nine cents per kilowatt-hour.

Electrical load shedding We have been taking part in national grid operator Transpower's trial programme to increase the reliability of its electricity network by managing peak loads and reducing the risk of power outages more effectively. This may help to defer investment in electricity transmission infrastructure.

Our contribution involves shedding electrical load when Transpower's transmission system is stretched. During the trial our Waterloo treatment plant shut down selected pumps within seconds of receiving a signal when the electrical supply frequency is low. We receive payment proportional to the amount of load we are able to shed and are one of a number of large electricity users taking part in the trial.

The trial period ended on 30 June. It showed that the system works well, without affecting our own levels of service. In the coming year we intend to look at which other of our facilities could be included in the programme.

- **System optimiser stage two** Software to assist with optimising delivery costs of water from the Te Marua treatment plant was installed 12 months ago. At that time new magnetic flow meters and control software changes to several pumping stations were still needed to fully optimise distribution from Te Marua.

  This year we installed the flow meters, but other demands on our Control Systems team has seen full commissioning delayed until 2009/10. Equivalent software has been in use since 2001 to manage supply from the Wainuiomata and Waterloo plants.

- **Chlorine plant – Te Marua** Construction of a sodium hypochlorite generating plant was newly finished at 30 June 2009. The sodium hypochlorite will be used to disinfect the treated water, replacing purchased chlorine gas. This plant will be commissioned in the coming year.

- **Coagulant control – Te Marua** Coagulant 'feed-forward' dose control was implemented as the primary coagulant control at Te Marua during the year. This method of control reacts more quickly to changing raw water quality than the streaming current meter (SCM) used previously. It has thus allowed coagulant dosing to be optimised and shows particular advantage when raw water quality changes quickly.

  A comparison of actual coagulant dosing using SCM with modelled dosing using 'feed-forward' control over the same period showed coagulant chemical demand savings of 14%.

- **Lime system upgrade – Waterloo** Last year we reported changes to the lime dosing system at Waterloo treatment plant, which we anticipated would reduce our use of treatment lime in the current year. The average dose rate during 2008/09[10] shows a 12% reduction compared with the average of the previous two years. At current lime costs and assuming average flow of 65 million litres daily this improvement represents a saving of approximately $24,000.

EMISSIONS AND WASTE

- One non-compliance with discharge consents
- Solid waste per litre higher, reflecting higher chemical demand to treat raw water
- Wainui lime batching plant cuts liquid waste disposal cost

- **Discharge consents** The preliminary compliance assessment from the consent manager notes a single non-complying event, due to our not providing the required notice prior to the start of a planned discharge. (EMS target 3.2.2, page 38)

- **Solid waste to landfill** Production from our Te Marua and Wainuiomata treatment plants resulted in 2,462 tonnes of de-watered sludge, or 79 kilograms for every million litres of water treated. This is an 8.0% increase in total tonnage year on year, and an 8.2% increase in terms of kilograms per million litres of river water treated[11].

  This unwelcome result relates closely to our increased chemical demand arising from one of the Te Marua storage lakes being out of service for half the year (see 'Chemical use efficiency', page 16). Solid waste by volume of water treated at Wainuiomata was 19.7% less year on year, but at Te Marua it was 19.4% more; the much higher production volume from Te Marua resulted in a net increase overall. (EMS target 3.2.3, page 38)

- **Lime batching plant – Wainuiomata** A hydro-cyclone separator system for the batching plant was commissioned in April 2008 to reduce liquid waste volumes. Last year we reported the cost saving from waste disposal was estimated to be $10,000 per year, giving a projected payback period of just over three years. Actual liquid waste disposal costs for the year were $36,500, a saving of $12,400 (25%) compared with 2007/08. Some fine tuning of the system is still required.

10. Based on the first three quarters of 2008/09.

11. Sludge to landfill during 2007/08 was 2,280 tonnes; not 1,508 tonnes as reported last year.

OTHER PROJECTS

- New asset management system
- Te Marua control system upgrade near completion

- **Asset management** Greater Wellington is consolidating its asset and financial management within a single management system: SAP. Our Asset team has been heavily involved on the SAP project. System acceptance testing is complete. Staff training and data transfer for our 6,525 individually identified assets are still required before the target 'go live' date of September 2009.
- **Control system – Te Marua** In 2006 we identified that the Bailey distribution control system at the plant was rapidly becoming obsolete, with replacement parts no longer readily available. Progress with upgrading the control system during the current year was much slower than anticipated due to various unforeseen issues and the complexity of keeping this critical asset operational while carrying out a major refit. Final project commissioning was underway at our year end and we expect this work to be completed by September 2009. (QMS target 2.2.4, page 35)

The following table lists major projects by spending for the 2008/09 year.

MAJOR CAPITAL PROJECTS BY SPEND 2008/09

Project	Full year cost
Sodium hypochlorite generation – Te Marua	$674,000
DCS control system replacement – Te Marua	$443,000
Replace air valves – Kaitoke-Karori main	$442,000
Lake apron repair – Te Marua	$280,000
Lakes upgrade investigations – Te Marua	$276,000
'Pump as turbine' hydro generation – Te Marua	$273,000
System optimiser stage two	$235,000
Diesel storage and dispensing – Waterloo, Te Marua and Wainuiomata	$234,000

LAND USE AND BIODIVERSITY

- Survey finds very healthy catchment forests
- Hutt catchment possum control delayed

Greater Wellington actively manages 16,500 hectares of water catchment land in the Rimutaka and Tararua ranges, to ensure that it continues to yield high-quality raw water and to enhance biodiversity. We monitor various indicators of forest health, including bird densities, pest animal numbers by species and vegetation health. Professional hunters are routinely employed to keep down the numbers of large pest animals, while possum, mustelid and rodent control is carried out when needed.

- **Catchment survey** This year an aerial survey of both the Hutt and Wainuiomata-Orongorongo Water Collection Areas was undertaken as part of a biennial survey for introduced insects and fungi. The forest canopies were reported to be in a very healthy condition.
- **Hutt catchment possum control** Preparations for a 1080 possum control operation in the Hutt Water Collection Area were completed, but the start was delayed due to an administrative holdup. The demands on public health officials of managing the local response to swine flu resulted in a delay to receiving approval for the operation, but that was resolved shortly after our year end. This work aims to bring possum numbers back to well within our 5% target maximum for possums caught in monitoring traps.

COMMUNITY ENGAGEMENT

- Gardeners respond to mulching campaign
- Improved recall for water conservation tips
- Research collaboration with MfE
- Pipes recycled for new Te Marua lookout

- **Mulch spring promotion** During November we ran a month long campaign in association with garden centres to promote the benefits of mulch to gardeners and offer price discounts as a further incentive to act.

  We had some pleasing feedback from the retailers involved, including one with a nation-wide profile reporting Wellington mulch sales up 28% year on year while sales were lower nationally.

  Our consumer research showed recall of the campaign at 51%, up from 34% a year earlier. Of all people surveyed, 45% had bought or used mulch on their garden in the three months prior to the survey, with a quarter of those people claiming to have been influenced by the mulch campaign.

  Mulching is a key component of effective garden care with only modest water needs. This promotion supports our water conservation strategy of reducing peak-summer water use to extend security of supply from existing water supply infrastructure.

- **Water-wise gardening tips – summer promotion** Water use in mid summer can exceed 200 million litres per day; over 40% higher than the annual average. Outdoor water use, particularly watering of gardens is the main reason for this increase.

  Our summer gardening promotion aims to raise awareness of the risk of water shortages for our supply area during summer, and promote simple gardening tips to help avoid excessive watering. The promotion was scheduled to start in early January and appear weekly until the end of February. While January was dry, the west of our region received about twice the normal level of February rainfall. With plenty of water in our rivers and only modest levels of water use we cancelled all advertising after 8 February.

  Despite the abbreviated promotion period, public recall for two of the five watering tips we publicised was significantly better than a year earlier, while that for the remaining tips was unchanged. A majority of people could both recall seeing advertising of gardening tips and describe actions they had taken to conserve water outside at home.

Robert McClymont, one of ten winners of water-wise gardening equipment in our annual summer promotion of water conservation tips.

  The perceived level of risk of summer water shortages showed an increasing trend, while those aware of local watering restriction rules had also increased. While we cannot prove a direct relationship between our water conservation promotions and lower water use, a consistent water conservation strategy over the last decade has coincided with a gradually reducing trend in peak summer water use.

- **Research collaboration – Ministry for Environment** We assisted with the Ministry for Environment's investigation of attitudes and behaviour concerning three aspects of household water use, including garden watering. The project included a synthesis of results from earlier research by Greater Wellington, Watercare[12] and the Ministry, as well as focus groups to understand the reasons behind the attitudes and behaviours identified.

  Involvement with this project has contributed to our understanding of public attitudes about several water conservation issues.

- **New lookout over Stuart Macaskill Lakes** We have built a new lookout between the treatment plant and storage lakes at Te Marua, to help accommodate treatment plant visits by large school groups.

  Limited space within the treatment plant means that tours are suited to groups of fewer than 30 visitors. School parties can be two or three times that number, with large groups split up.

12. Auckland's bulk water supplier.

The lookout provides a facility for students to relax or investigate the history and features of the storage lakes and the region's bulk water supply system while waiting to tour the plant. We are keen to encourage more school groups to visit as part of their study of water issues and this is the first of several initiatives planned in that regard.

The lookout was constructed using leftover items of water supply infrastructure, with bits of pipe transformed into picnic tables, seats and viewports overlooking the storage lakes and surrounding countryside.

World Water Day display – 22 March To mark World Water Day we collaborated with Wellington City Council and Capacity on a public display to promote water quality and conservation issues. Our stand was part of a wider water-themed display on Wellington's water front. Poor weather and only six other exhibitors no doubt contributed to a lower turnout of visitors than we had hoped for.

Visitors We hosted over 600 visitors for water treatment plant and catchment tours.

HEALTH, SAFETY AND TRAINING

▶ No lost-time injuries during the year

Health and safety management is a crucial component of good business practice. Our health and safety plan details our commitment – through leadership, training and the allocation of resources – to effective planning, implementation, measurement, evaluation and review. To support the principle of continual improvement, we conduct a review of procedures at least every two years.

As part of an organisation-wide initiative, we implemented a health and safety database ('Safe T Smart') in 2008 to improve our monitoring and management of health and safety issues. Our reporting of health and safety has changed in two key areas as a result, to bring our reporting into line with industry best practice.

'Lost-time injuries' has been adopted as a key reporting parameter; previously 'incidents' – including accidents, injuries and near misses – was the key parameter reported. Also, we now measure health and safety aspects identified proactively – via inspections, audits and near-miss reports – in comparison to reactive reports arising from accidents and injuries. One of the principle ways of measuring health and safety performance is by monitoring the ratio between proactive and reactive reports.

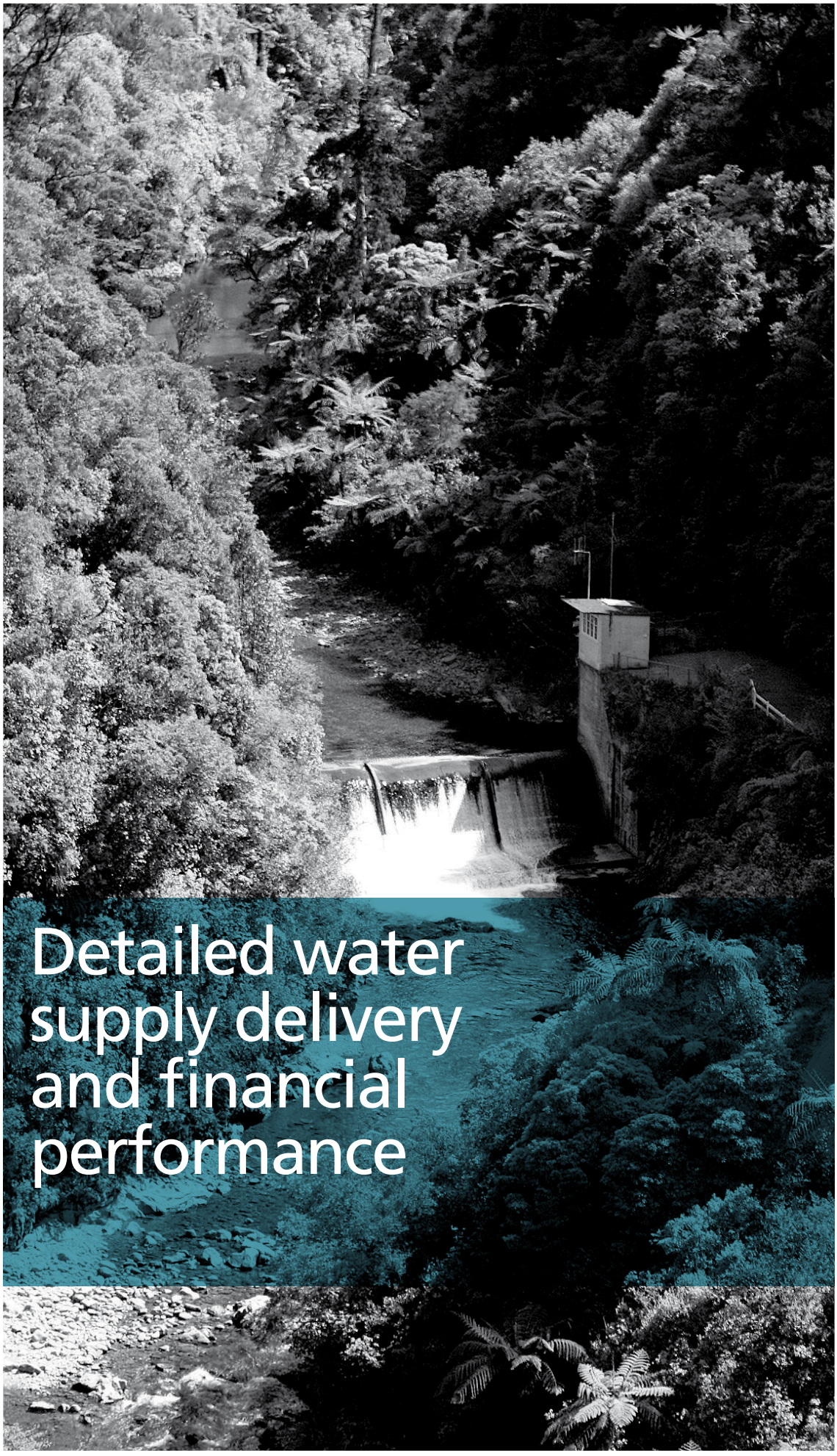
▶ It is pleasing to note that there were no injuries requiring time off work during the year. Twelve minor injuries and five near misses were reported, with a proactive to reactive reports ratio averaging 68.5 per month.

While recent changes to our health and safety processes mean comparison with past years' data isn't exactly like with like, both the frequency of accidents and near misses per 10,000 hours worked (1.8) and the number of working days lost to injury per 10,000 hours worked (nil) are below the median values for these parameters over the previous five years.

ACC workplace safety audit For a second year running we have committed considerable staff time to ensure our health and safety system matches the requirements of the Accident Compensation Corporation's (ACC) Workplace Safety Management Practices audit standards. Greater Wellington's first audit to ACC grade-two standard is timed for the first half of 2009/10.

Training Direct expenditure this year for training and professional development was 2.3% of total personnel costs (unchanged from 2007/08). The budget allowance was 3.1% (3.6% during 2007/08). The number of hours dedicated to staff training was 1,555, or 29 hours per employee. The comparative figures for 2007/08 are 1,522 hours and 28 hours per employee[13]. (EMS targets 7.1.1 and 7.2.1, page 39)

13. Reported in 2007/08 as 31 hours per employee.



Detailed water supply delivery and financial performance

Sources of water supplied

WATER ABSTRACTION (MILLIONS OF LITRES)

For the year ended 30 June

Source	Annual					Maximum week			Maximum day		
	Total			Average day			Average day			Day	
			Percent			Date			Date		
	2009	2008	2009	2009	2008	2009	2009	2008	2009	2009	2008
River and stream abstraction											
Kaitoke/Te Marua	27,536	27,262	46.1%	75.4	74.5	3/06/09	135.9	132.4	8/11/08	146.8	143.5
Wainuiomata	6,047	3,598	10.1%	16.6	9.8	13/08/08	45.8	21.1	9/08/08	43.3	47.3
Orongorongo	1,626	1,592	2.7%	4.5	4.3	1/04/09	17.2	15.4	6/03/09	21.5	20.3
George Creek	1,317	1,110	2.2%	3.6	3.0	12/11/08	6.5	5.2	28/07/08	9.4	8.3
Big Huia Creek	604	825	1.0%	1.7	2.3	27/08/08	6.9	8.1	22/08/08	11.0	10.6
Total - Rivers	37,130	34,387	62.2%	101.7	94.0	3/06/09	159.3	163.8	13/10/08	193.4	178.5
Public artesian abstraction											
Waterloo	22,461	24,091	37.6%	61.5	65.8	24/12/08	86.5	92.9	15/01/09	94.9	100.0
Gear Island	77	57	0.1%	0.2	0.2	6/08/08	7.0	3.2	2/08/08	12.1	18.4
Total – Artesian	22,539	24,148	37.8%	61.8	66.0	24/12/08	86.7	92.9	15/01/09	94.9	104.3
Total Public Abstraction	59,669	58,535	100.0%	163.5	159.9	3/12/08	224.3	219.5	18/12/08	268.2	236.8

Totals may not add exactly due to rounding

RAINFALL LEVELS (MILLIMETRES)

For the year ended 30 June

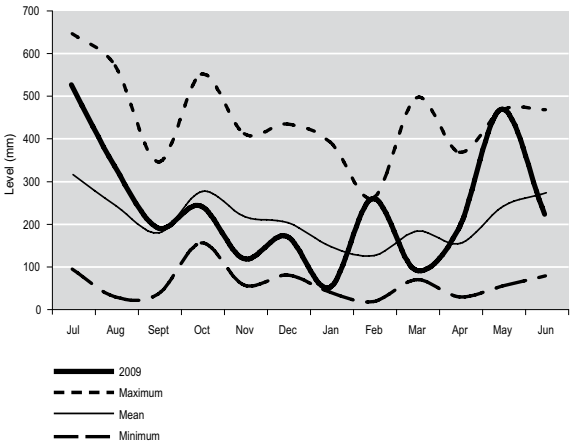
	Kaitoke[1]	Karori[2]	Orongorongo[3]	Wainuiomata[4]
2009	2,544	1,567	2,807	2,031
2008	1,847	1,274	2,101	1,539
Mean of data record	2,301	1,238	2,543	1,928
2009:mean	111%	127%	110%	105%

1: Kaitoke Headworks rain gauge. 2: Karori Sanctuary rain gauge. 3: Orongorongo Swamp rain gauge. 4: Wainuiomata Reservoir rain gauge

The following graphs show average rainfall per month in our surface water catchments compared with the maximum, minimum and mean of the data record for each site.

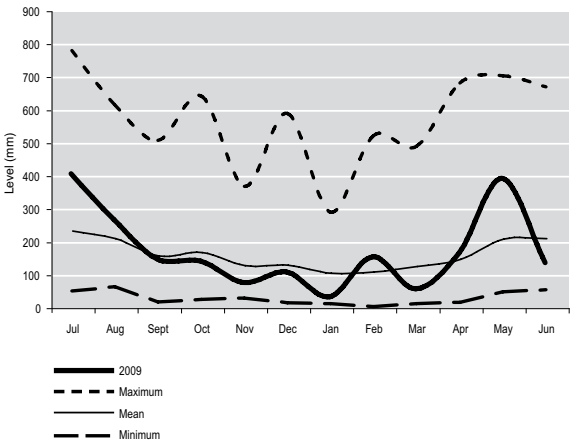
ORONGORONGO CATCHMENT RAINFALL

(Orongorongo Swamp record 1980-2009)



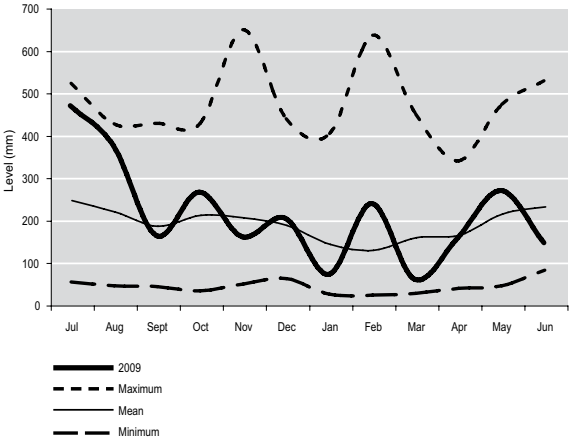
WAINUIOMATA CATCHMENT RAINFALL

(Wainuiomata Reservoir record 1890-2009)



HUTT CATCHMENT RAINFALL

(Kaitoke Headworks record 1951-2009)



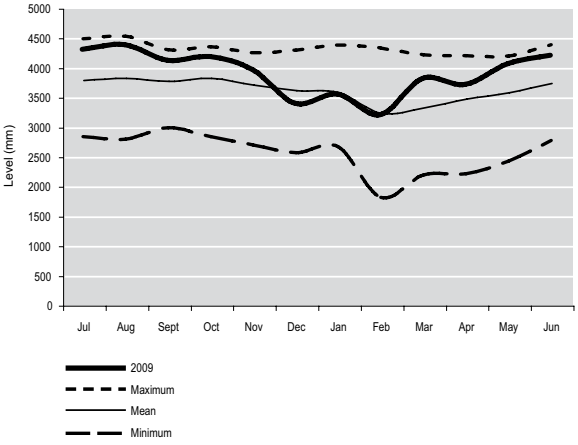
LEVELS AND FLOWS FROM WATER SOURCES

The following three graphs show historical highs, lows and averages for river flows from the Hutt and Wainuiomata Rivers and for the level of the Waiwhetu aquifer at Petone – the three main water sources used to supply the Wellington metropolitan area – compared with data for the 12 months to 30 June 2009.

WAIWHETU AQUIFER

(McEwan Park record 1971-2009)

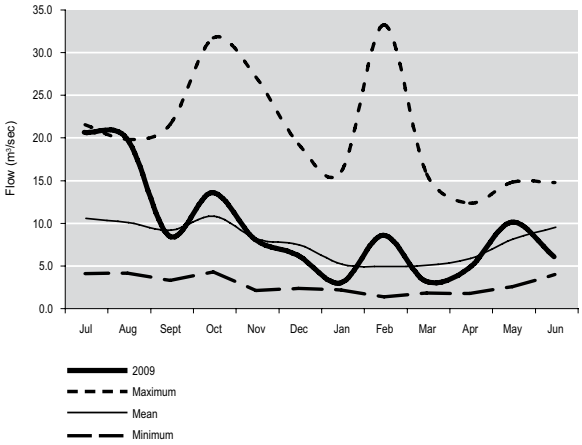
Average monthly flow rate for the year ended 30 June



HUTT RIVER

(Kaitoke record 1968-2009)

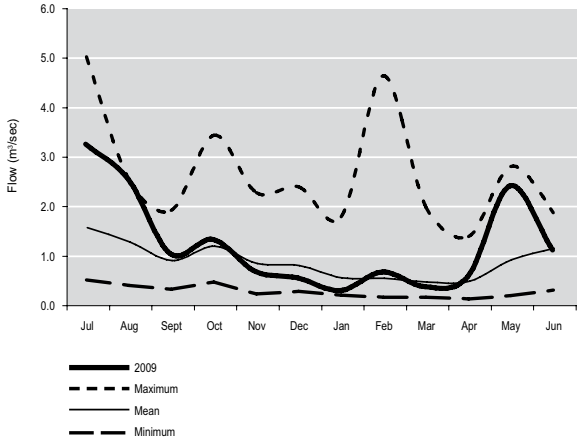
Average monthly flow rate for the year ended 30 June



WAINUIOMATA RIVER

(Manuka Track record 1982-2009)

Average monthly flow rate for the year ended 30 June



Distribution shut-offs

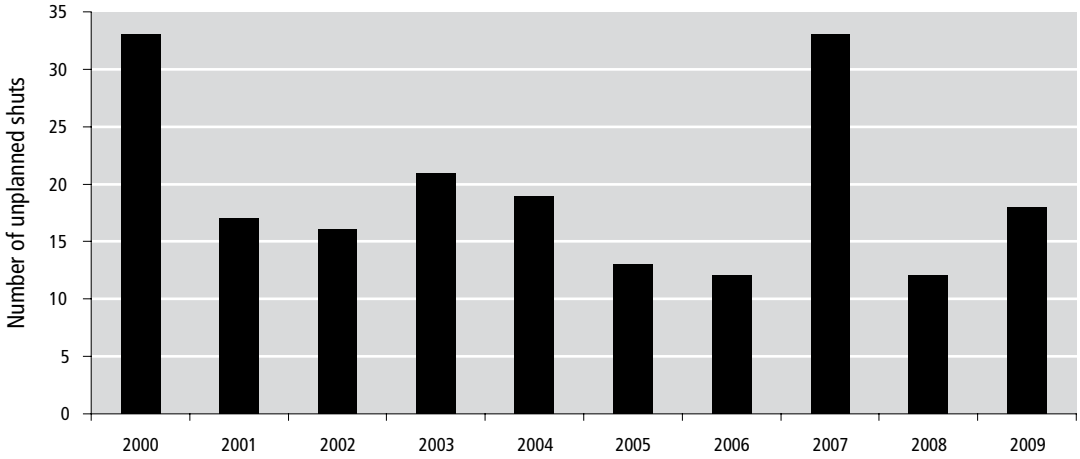
For the year ended 30 June

There were 51 shut-offs on the GW Water's regional water supply mains (2008 = 61). All works were completed and the supply reinstated without loss of pressure or supply to our customers. Of these shut-offs, 17 took more than eight hours to reinstate, but in these cases, alternative water supplies were available.

Eighteen shut-offs were unscheduled, for the repair of leaking or burst mains, or to repack leaking valves, compared with 12 during the year to 30 June 2008 (see graph below).

The remaining 33 shut-offs were scheduled (2008 = 49). This work was required to install new or refurbished pipes and valves (20), install new flow meters (4), mitigate the risk of asset failures from seismic activity (6), install fire hydrants (2) and for planned maintenance on other distribution assets (1).

UNPLANNED SHUT-OFFS OF BULK WATER MAINS



Resource consents

RESOURCE CONSENTS HELD AS AT 30 JUNE 2009

Water take	Land use	Discharge	Total
10	53	20	83

For a report of compliance with consents for the year to 30 June 2009, see EMS target 1.3.2, page 37.

Water supplied to customers

Historically, we have recorded water supply figures weekly by manual reading of revenue meters at the supply points to our customers. However, since December 2005, we have had remote access to these meters and have collected readings daily. The annual supply totals prior to the year ended 30 June 2006 presented below have been calculated to represent 365/366-day years, so as to make the historic data more directly comparable between years and consistent with abstraction and production figures, which are recorded daily. The years ended 30 June 2000, 2004 and 2008 are 366 days.

WATER SUPPLIED (MILLIONS OF LITRES)

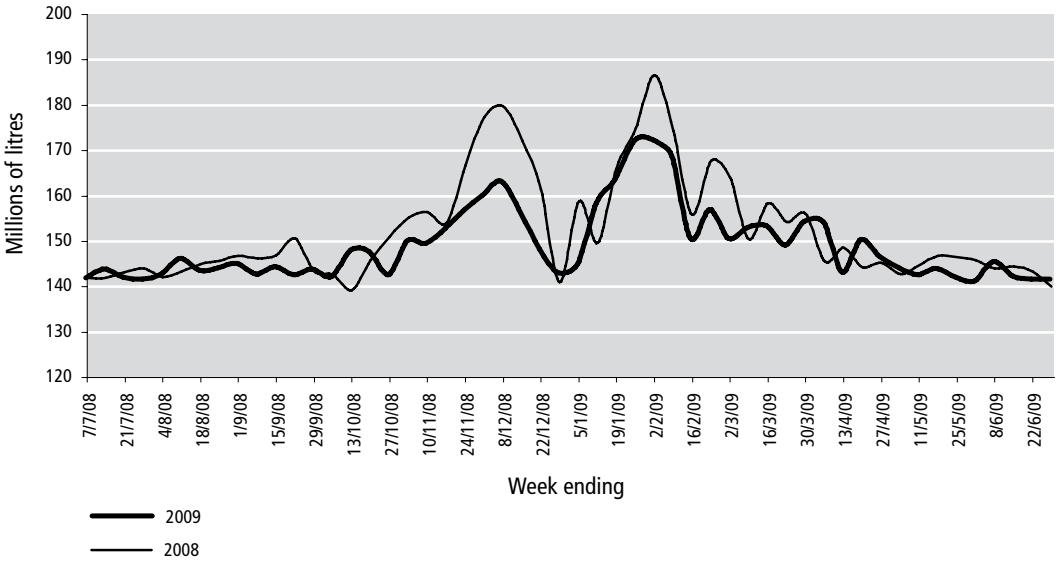
For the year ended 30 June

	Hutt City		Porirua City		Upper Hutt City		Wellington City		Total supply	
	Total	Avg. day	Total	Avg. day	Total	Avg. day	Total	Avg. day	Total	Avg. day
2009	13,804	37.8	6,277	17.2	5,011	13.7	29,136	79.8	54,228	148.6
2008	14,133	38.6	6,439	17.6	5,159	14.1	29,912	81.7	55,642	152.0
% change	-2.3%		-2.5%		-2.9%		– 2.6%		– 2.5%	
2007	14,076	38.6	6,317	17.3	5,113	14.0	30,542	83.7	56,048	153.6
2006	14,236	39.0	6,475	17.7	5,533	15.2	31,667	86.8	57,913	158.7
2005	13,938	38.2	6,022	16.5	5,319	14.6	30,244	82.9	55,522	152.1
2004	13,956	38.1	5,907	16.1	5,296	14.5	29,776	81.4	54,935	150.1
2003	14,714	40.3	6,135	16.8	5,303	14.5	29,899	81.9	56,050	153.6
2002	14,177	38.8	5,908	16.2	5,774	15.8	28,902	79.2	54,760	150.0
2001	14,441	39.6	5,987	16.4	5,807	15.9	29,729	81.4	55,962	153.3
2000	13,989	38.2	5,536	15.1	5,496	15.1	28,729	78.5	53,750	146.9

AVERAGE DAILY SUPPLY BY WEEK

For the year ended 30 June 2009

Weeks shown are from 1 July each year



AVERAGE PER CAPITA DAILY SUPPLY (LITRES)

For the year ended 30 June 2009

	Hutt City	Porirua City	Upper Hutt City	Wellington City	Total
Population[1]	101,150	50,900	38,200	193,200	383,300
Households[2]	35,727	15,564	14,253	68,901	134,445
Gross litres/head/day	374	338	359	413	388
Gross litres/household/day	1,059	1,105	963	1,159	1,105

1: Usually-resident population, urban areas – extrapolated from Statistics NZ estimates. The populations presented are based on estimates for 30 June 2008, plus half the difference between the 30 June 2007 and 2008 estimates, to approximate a 2008/09 average population. 2: Occupied dwellings, local authority areas – Statistics NZ 2006 Census (final)

MAXIMUM WEEK SUPPLY (MILLIONS OF LITRES)

For the year ended 30 June

	Hutt City	Porirua City	Upper Hutt City	Wellington City	Total
Maximum week 2009	**4/02/09**	**4/02/09**	**4/02/09**	**4/02/09**	**4/02/09**
Total of max. week					
2009	316.7	144.1	122.7	636.1	1,219.7
2008	336.8	156.2	124.3	668.0	1,285.3
% change	– 6.0%	– 7.7%	– 1.3%	– 4.8%	– 5.1%
Avg. day of max. week					
2009	45.2	20.6	17.5	90.9	174.2
2008	48.1	22.3	17.8	95.4	183.6

'BASE' WINTER (JUNE - AUGUST) SUPPLY (MILLIONS OF LITRES)

For the year ended 30 June

	Hutt City		Porirua City		Upper Hutt City		Wellington City		Total 'base' supply	
	Total	Avg. day	Total	Avg. day	Total	Avg. day	Total	Avg. day	Total	Avg. day
2009	3,352	36.4	1,505	16.4	1,201	13.1	7,062	76.8	13,119	142.6
2008	3,321	36.1	1,491	16.2	1,192	13.0	7,165	77.9	13,168	143.1
% Change	**+0.9%**		**+0.9%**		**+0.8%**		**– 1.4%**		**– 0.4%**	
2007	3,387	36.8	1,515	16.5	1,240	13.5	7,813	84.9	13,955	151.7
2006	3,377	36.7	1,503	16.3	1,276	13.9	7,560	82.2	13,716	149.1
2005	3,356	36.5	1,443	15.7	1,245	13.5	7,271	79.0	13,314	144.7
2004	3,414	37.1	1,415	15.4	1,226	13.3	7,230	78.6	13,285	144.4
2003	3,498	38.0	1,402	15.2	1,283	13.9	7,137	77.6	13,319	144.8
2002	3,445	37.4	1,365	14.8	1,374	14.9	6,996	76.0	13,180	143.3
2001	3,361	36.5	1,335	14.5	1,335	14.5	6,974	75.8	13,005	141.4
2000	3,394	36.9	1,284	14.0	1,305	14.2	7,016	76.3	12,999	141.3

N.B. figures are July and August from one calendar year and June from the next. E.g. 2009 represents July and August 2008 and June 2009

Water supply to Wellington during June 2006 (shown as part of the 2006 June year total), and July and August 2006 (shown as part of the 2007 June year total), was substantially more than expected, due to a large leak in the city's reticulation, which was repaired in September 2006. Water supply to Wellington in June 2006 was 11.7% more than during June 2007, while supply during July and August 2006 was 12.1% more and 10.7% more respectively than for the same months in 2005. Our analysis suggests this leak accounts for much of the increase seen in total base supply during those two financial years.

Water quality

CHEMICAL MONITORING OF THE BULK WATER SUPPLY

The health risk due to toxic chemicals in drinking water differs to that caused by microbiological contaminants. It is unlikely that any one substance could result in an acute health problem except under exceptional circumstances, such as significant contamination of the supply. Moreover, experience has shown that the water usually becomes undesirable after such incidents for obvious reasons, such as taste, odour and appearance. The problems associated with chemical constituents arise primarily from their ability to cause adverse effects after prolonged periods of exposure. Standards for chemical compliance are set out in the Drinking-water Standards for New Zealand (DWSNZ) 2005 (Revised 2008).

The drinking water standards state that maximum acceptable values (MAV) for inorganic determinands of health significance represent the concentrations in water that, based on present knowledge, are not considered to cause any significant risk to the health of the consumer over their lifetime of consumption of that water. Guideline values (GV) apply to aesthetic determinands, which are not considered of health significance. However, if a GV is exceeded the water may be rendered unappealing to consumers.

MEAN VALUES OF CHEMICAL ANALYSIS AT TREATMENT PLANTS

For the year ended 30 June 2009

DWSNZ 2005 (Revised 2008)			Te Marua		Wainuiomata		Waterloo		Gear Island	
Parameter	**MAV[A]**	**GV[A]**	**No. of samples**	**Value**	**No. of samples**	**Value**	**No. of samples**	**Value**	**No. of samples**	**Value**
Alkalinity (total), mg/L $CaCO_3$	–	–	13	29.2	13	33.2	13	50.4	12	44.3
Aluminium (acid soluble), mg/L	–	0.10	26	0.01	25	0.02	–	–	–	–
Arsenic (total), mg/L	0.01	–	2	<0.002	2	<0.002	2	<0.002	2	<0.002
Boron, mg/L	1.4	–	2	<0.05	2	<0.05	2	<0.05	2	0.028
Cadmium (total), mg/L	0.004	–	2	<0.001	2	<0.001	2	<0.001	2	<0.001
Calcium (total), mg/L	–	[B]	–	–	–	–	–	–	–	–
Chloride, mg/L	–	250	1	8.6	1	22.9	2	15.8	2	16.6
Chromium (total), mg/L	0.05	–	2	<0.001	2	<0.001	2	<0.001	2	<0.001
Conductivity, µS/cm @ 25°C	–	–	14	10.7	14	15.4	15	16.3	13	16.5
Copper (total), mg/L	2	–	13	<0.013	13	<0.013	13	<0.013	13	<0.013
Cyanide (total), mg/L	0.6	–	2	<0.005	2	<0.005	2	<0.005	2	<0.005
Fluoride, mg/L	1.5[C]	–	52	0.8	51	0.9	52	0.8	52	0.8
Hardness (total), mg/L $CaCO_3$	–	200	13	22.6	13	34.1	13	39.4	26	34.2
Iron (total), mg/L	–	0.2	13	0.013	13	0.042	13	0.049	14	0.066
Langelier saturation index	–	–	13	– 1.6	13	– 1.5	13	– 1.2	12	– 1.2
Lead (total), mg/L	0.01	–	2	<0.001	2	<0.001	2	<0.001	2	<0.001
Magnesium (total), mg/L	–	[B]	–	–	–	–	–	–	–	–
Manganese (total), mg/L	0.4	–	13	<0.013	13	<0.013	13	<0.013	13	<0.013
Mercury (total), mg/L	0.007	–	2	<0.001	2	<0.001	2	<0.001	2	<0.001
Nickel (total), mg/L	0.08	–	2	<0.001	2	<0.001	2	<0.001	2	<0.001
Nitrate, mg/L –N	50	–	2	0.01	2	0.06	2	0.8	2	1.4
pH	–	7.0 – 8.5	14	7.4	14	7.3	15	7.4	65	7.3
Selenium (total), mg/L	0.01	–	2	<0.005	2	<0.005	2	<0.005	2	<0.005
Silica (molybdate-reactive), mg/L	–	–	2	9.2	2	13.5	2	16.7	2	17.7
Sodium (total), mg/L	–	200	1	12.7	1	15.7	2	16.7	2	24.0
Solids (total dissolved), mg/L	–	1000	1	53	1	74	2	89	1	96
Sulphate, mg/L	–	250	1	8.8	1	5.0	2	6.4	2	7.2
Zinc (total), mg/L	–	1.5	12	<0.013	13	<0.013	13	<0.013	13	<0.013

Notes: Values that are preceded by the '<' symbol indicate the detection limit for that test. (A) Drinking-water Standards for New Zealand 2005 (Revised 2008); MAV denotes 'Maximum acceptable values for inorganic determinands of health significance'; GV denotes 'Guideline values for aesthetic determinands'. A dash in the 'GV' or 'MAV' column indicates that there is no applicable value. (B) See Hardness. (C) The fluoride content recommended for drinking water by the Ministry of Health for oral health is 0.7 to 1.0 mg/L.

MICROBIOLOGICAL MONITORING OF THE BULK WATER SUPPLY

A public water supply that is free from microbiological contamination is an important factor in achieving high standards of public health. Microbiological contamination of a water supply has the potential to cause sickness within the community. Microbiological monitoring of potable water is carried out in order to determine the safety of the water in relation to the possibility of transmission of waterborne disease. *Escherichia (E.) coli*, which usually comes from faecal material, is used as an indicator of bacteriological contamination. Low numbers of protozoa *(Cryptosporidium)* are demonstrated by ensuring the turbidity of the water following treatment is kept very low. Direct testing of protozoa is not practical or required by the Ministry of Health.

PRODUCTION

At our surface-water treatment plants (Te Marua and Wainuiomata) compliance with the microbiological criteria of the DWSNZ is demonstrated by continuously monitoring turbidity of the water leaving each filter, and free available chlorine (FAC) and pH in drinking water leaving the treatment plants. A chlorine residual in the treated water indicates that microbiological contaminants have been neutralized.

The Waiwhetu aquifer is a secure water source and, therefore, free from microbiological contamination according to the drinking water standards. However, water leaving our aquifer-source water treatment plants (Waterloo and Gear Island) is tested to demonstrate compliance to the *E.coli* criteria of the DWSNZ. No *E.coli* was detected in daily testing of water leaving either the Waterloo or Gear Island water treatment plants.

Regional public health units assess microbiological compliance with the DWSNZ on behalf of the Ministry of Health. These assessments cover the same period as our financial year: 12 months to 30 June.

We have received provisional notice of microbiological compliance for our Te Marua, Wainuiomata, Waterloo and Gear Island treatment plants for the 12 months to 30 June 2009. We expect this result will be confirmed in due course.

DISTRIBUTION

An International Accreditation New Zealand-registered laboratory monitors the microbiological quality of water in our distribution system after treatment. *E.coli* sampling is used, in accordance with the requirements of the drinking water standards for sampling urban reticulation systems.

Our distribution system is listed in the Register of Community Drinking Water Supplies in New Zealand. The system is split into three distinct zones, with each having its own sampling requirements based on population served. Samples must be taken on different days of the week and from sites that represent the full range of conditions that exist within a distribution zone. The three zones are (1) Central Hutt/Petone (un-chlorinated supply from Waterloo Water Treatment Plant), (2) Wainuiomata/South Wellington (supply from Wainuiomata Water Treatment Plant) and (3) Upper Hutt/Porirua/North Wellington (supply from Te Marua Water Treatment Plant). Samples are drawn from 16 sampling sites within the three zones.

We received provisional compliance with the DWSNZ, for the 12 months to 30 June 2009, from the regional public health unit of Hutt Valley District Health Board. We expect this result will be confirmed in due course.

A summary of results for the 12 months to 30 June 2009 is given below.

E.COLI RESULTS – SUMMARY OF SAMPLES COLLECTED

For the year ended 30 June 2009

Distribution Zone	DWSNZ MAV[D]	No. of samples	No. of positive results
Central Hutt/Petone	<1 in 100 mL of sample	374	0
Wainuiomata/South Wellington	<1 in 100 mL of sample	286	0
Upper Hutt/Porirua/North Wellington	<1 in 100 mL of sample	387	0

(D) Drinking-water Standards for New Zealand 2005 (Revised 2008), MAV denotes 'Maximum acceptable value for microbial determinands'.

Annual Plan performance indicators

The performance indicators that applied during the 2008/09 operating year are shown in regular type. Performance in relation to these indicators is denoted in italic type.

QUALITY, CUSTOMER SERVICE AND BUSINESS EFFICIENCY (COLLECT, TREAT AND DELIVER WATER): LONG-TERM

Levels of service

1. Collect water from the Hutt, Wainuiomata and Orongorongo catchments and the Waiwhetu aquifer for public drinking water supply
2. Manage catchments so that treatment plants receive good quality water
3. Treat water so that it meets the Ministry of Health's standards for drinking water
4. Deliver water to the cities of Lower Hutt, Porirua, Upper Hutt and Wellington

By 30 June 2016

The quality of water supplied will continually meet the Ministry of Health's Drinking-water Standards for New Zealand (DWSNZ). The related water supply infrastructure will be maintained and improved to meet the standards specified in the Regional Water Supply Asset Management Plan.

All water that GW Water treats currently meets the requirements of the Ministry of Health's drinking water standards.

GW Water has a policy to target an 'A' grade standard for each of its water treatment plants. This means the water supplied to its customers is completely satisfactory, with minimal levels of health risk.

The Te Marua and Wainuiomata treatment plants are graded 'A1', the highest grading possible. The Waterloo plant is graded 'B', the highest grading possible given Hutt City Council's preference for an unchlorinated supply.

The Gear Island treatment plant (a standby water source) is currently graded 'U' (ungraded). The requirements for an 'A' grading are being assessed.

GW Water holds certification to ISO 9001:2000, Quality Management Systems – Requirement, for its bulk water supply operations.

QUALITY, CUSTOMER SERVICE AND BUSINESS EFFICIENCY (COLLECT, TREAT AND DELIVER WATER): SHORT-TERM

By 30 June 2009

Water will be supplied to the four cities within a total operating expenditure (excluding depreciation) of $21,473,029.

Total operating expenditure for 2008/09 was $20,491,000. Savings were realised from reduced costs for contractors, personnel and materials, and lower interest charges.

The collection, treatment and delivery of water will be managed to ensure the quality of water supplied continually complies with the Ministry of Health's DWSNZ 2005. Water testing will be carried out by a laboratory with International Accreditation New Zealand (IANZ) registration, in accordance with the requirements of the Standards.

We received provisional advice from the drinking water assessor employed by Hutt Valley District Health Board that, for the year to 30 June 2009, we achieved full compliance with the DWSNZ for water leaving our treatment plants and in the bulk distribution system.

A comprehensive monitoring and testing programme, complying with the requirements of the DWSNZ, has been undertaken. The quality of the water leaving the treatment plants has been continuously monitored, with results recorded every minute. The quality of the water in the bulk distribution system has been sampled and tested by an IANZ-accredited laboratory, at representative locations, in accordance with a testing regime agreed with the Regional Public Health unit of Hutt Valley District Health Board.

The grading of each water treatment plant at 1 July 2008 will be retained, except where a treatment plant is graded during the year. Regraded plants will receive the same or a better grade. Operational staff will hold the relevant NZQA qualifications as required by the Ministry of Health grading guidelines.

There have been no changes to our treatment plant gradings since 1 July 2008.

Vegetation management and pest control measures will be carried out in Greater Wellington's water supply catchments, in accordance with its Forestry Management Plan and within a budget of $42,000, so that the treatment plants receive good quality raw water.

Staff and contractors carried out vegetation management and pest control measures, at a cost of $132,800. Sampling of untreated source water showed no unusual levels of Cryptosporidium.

The four Wellington metropolitan city council customers will be provided with a business report by 30 November 2008, which will include the following information:

- Financial results for the preceding financial year ended 30 June
- Actual water quality compared with targeted performance
- A list of incidents where supply has been interrupted, together with the time taken to respond and repair

- A report on compliance with resource consent requirements
- Status of service level agreements

The Water Supply Annual Report 2007/08 containing the required information was published on 1 December 2008 and provided to our customers.

(Note: GW does not have a formal service level agreement with its customers. Ten-year plans and annual plans, which include key performance indicators (KPIs), are consulted on. QMS and EMS targets include standards for aspects of service performance, such as reservoir level maintenance and supply pressure; these aspects together with KPIs are reported annually. No substantive progress was made on a formal service level agreement during the 2008/09 year.)

PLAN TO MEET CURRENT AND FUTURE DEMANDS FOR WATER: LONG-TERM

Levels of service

1. Assess the demand for water now and in the future and plan how such demands will be met, including developing new sources
2. Encourage people to use water wisely

By 30 June 2016

Water supply will be adequate to meet present and future demands in accordance with current supply policy (currently a one in 50-year return-period drought standard).

Water consumption will be reduced by the amount agreed with our four city customers and specified in the Wellington Water Management Plan.

Development projects and activities have been included in the 2009-19 LTCCP to restore the one in 50-year drought standard based on current population projections and water consumption levels.

Greater Wellington is in discussion with the region's eight city and district councils about a Regional Water Strategy, to underpin sustainable use and management of our water resources. It is anticipated that the strategy will include water use reduction targets, although the form of those targets is still to be determined.

PLAN TO MEET CURRENT AND FUTURE DEMANDS FOR WATER: SHORT-TERM

By 30 June 2009

Design of system enhancements will begin to enable supply for a population of 395,000.

Investigations into raising the level of the Stuart Macaskill Lakes and a draft application for resource consent to reduce the low flow limit at Kaitoke Weir were both completed.

Consultation will be carried out on the water supply strategy options by 31 December 2008.

The four city customers were consulted on the water supply strategy options and the options were included in the draft LTCCP for public consultation.

A water conservation programme will be implemented, within a budget of $185,000.

A wet February and low demand for water resulted in reduced advertising for water conservation and water restriction communications. Actual costs were $105,000.

PLAN FOR EMERGENCIES: LONG-TERM

Levels of service

Maintain our pipes and plants and build resilience in the system, so water can continue to be supplied after an emergency or be restored as quickly as possible.

By 30 June 2016

Water will be available on a daily basis to meet the one in 50-year return-period drought standard. The related water supply infrastructure will be maintained and improved to meet the standards specified in the Regional Water Supply Asset Management Plan.

Plans will be in place to enable water to be supplied to the community following a major natural disaster.

Greater Wellington was unable to meet the one in 50-year supply standard in 2008/09, because of population growth above projections over several years. Greater Wellington is currently operating to a one in 26-year drought standard or a 3.9% probability of shortfall in any year. Developments and activities have been included in the 2009-19 LTCCP to restore the one in 50-year standard.

Greater Wellington Water has an 'n-1' policy for security of water supply. This means that, even if one of the three main water treatment plants were out of commission, there would still be sufficient water available to meet the basic needs of the community under most circumstances. The resilience of the bulk water supply system is being enhanced by improvements to the more vulnerable parts of the system. New cross connections are continuing to be installed between the customers' reticulation system and the bulk water pipelines.

GW Water manages water supply assets in accordance with a planned programme of maintenance. Our policy is that there is no deferred maintenance. The Asset Management Plan was prepared in accordance with the National Asset Management Steering Group guidelines.

PLAN FOR EMERGENCIES: SHORT-TERM

By 30 June 2009

At least one customer emergency connection will be installed, within a budget of $50,000.

An emergency supply connection was installed adjacent to the Timberlea Pumping Station to allow a water supply from the Greater Wellington water main into the Upper Hutt City Council reticulation main during an emergency. Total expenditure exceeded the $50,000 budget by $16,500 because of increased scope due to another utility owner providing incorrect drawings.

Hazard protection work will be undertaken at a cost not exceeding $350,000.

A total of about $227,000 was spent on protecting fixed infrastructure from hazards and events, and improving the time for repair.

ENVIRONMENTAL MANAGEMENT: LONG-TERM

All water supply activities will be undertaken in an environmentally sympathetic manner according to the principles of the Resource Management Act 1991.

GW Water acquires and seeks to comply with all appropriate resource consents. Abstraction consents govern the quantity of water that can be drawn from each source and how much must remain. Consents are also sought for any discharges from the treatment plants. Most by-products from the plants are processed through wastewater recovery plants and removed off-site.

GW Water holds certification to ISO 14001:2004 (the International Standards Organisation's environmental management benchmark) for its bulk water supply activities.

ENVIRONMENTAL MANAGEMENT: SHORT-TERM

By 30 June 2009

All appropriate resource consent conditions will be complied with, within a monitoring budget of $65,000.

There have been no significant breaches of consents for the period. Annual consent monitoring costs were $48,000.

Resource consent compliance will be demonstrated to an auditable standard and a report on compliance for 2007/08 will be prepared by 30 November 2008.

A compliance report was provided to the consent manager as required. GW Water's 2007/08 Water Supply Annual Report summarised compliance performance.

Installing Waiwhetu aquifer inland monitoring wells will be started at a cost not exceeding $30,000.

The investigation report identified that a robust monitoring system could be set up inside the production wells, rather than in separate monitoring wells. Instrumentation has been ordered to monitor water quality continuously. Expenditure for this revised project was $86,000.

HEALTH AND SAFETY: LONG-TERM

The manner in which we carry out our operations will comply with the Health and Safety in Employment Act 1992, as amended in 2002, Health and Safety Regulations 1995, relevant codes of practice and current legislation.

A hazard identification programme will be undertaken at all work locations in order to eliminate, isolate or minimise the effect of risk to all GW Water staff and contractors working at those locations. These hazards will be entered on a hazard register, which will be continually updated.

A hazard identification programme has been undertaken for all operational sites. Hazard registers have been updated and are maintained on an ongoing basis.

HEALTH AND SAFETY: SHORT-TERM

By 30 June 2009

Hazard registers will be reviewed on a six-monthly basis. The effectiveness of the measures taken to eliminate, isolate or minimise risk to all GW Water employees and contractors will be continually assessed.

A review of all hazard and confined space registers has been carried out at each site. Revised registers are now on the Greater Wellington intranet.

The health and safety plans of all contractors employed by GW Water will be reviewed prior to their employment. Their activities should comply with the Health and Safety in Employment Act 1992, as amended in 2002, the Health and Safety Regulations 1995, relevant codes of practice and current legislation, and meet or exceed the methods of operation as determined within the Utility Services Health and Safety Plan. Their activities will be monitored on a regular basis, to ensure that any risk to their employees, employees of subcontractors, Greater Wellington staff or the public is eliminated, isolated or minimised.

Contractor Health and Safety plans continue to be reviewed prior to engagement.

Quality management system

QUALITY MANAGEMENT SYSTEM – OBJECTIVES, TARGETS AND PERFORMANCE

Text in the two columns to the right of each target gives (1) a summary of performance against the target for the 2008/09 financial year, and (2) additional background information where needed

	Targets	Achievement 2008/09	Comment
Objective 1.1	Provide sufficient water to meet the unrestricted (other than routine hosing restrictions) demand in all but a drought situation that has a severity equal to or greater than a 1 in 50-year drought.		
Target 1.1.1	Develop new sources, as required, to ensure that sufficient water is available to meet the unrestricted (other than by routine hosing restrictions) demand in all but a drought situation that has a severity equal to or greater than a 1 in 50-year drought. (Annual performance indicator)	Not achieved	GW Water uses a complex supply and demand model (Sustainable Yield Model) to assist with strategic planning. This SYM indicates that the current annual shortfall risk is approximately 2.9% (target < 2.0%). However, we met all demand for water without restriction during the year, other than the 'time of use' requirements that each city council employs to manage water used for garden watering. We have continued to investigate in detail four short-term options to increase available water for supply (see pages 10–11), and consulted about these options. There was no physical development work on new water sources during the year.
Target 1.1.2	Develop and extend the water supply infrastructure as required to ensure that sufficient water is available to meet the unrestricted (other than routine hosing restrictions) demand in all but a drought situation that has a severity to or greater than a one in 50-year drought. (Annual performance indicator) [Note: In a drought situation, it may be necessary to impose restrictions as a precautionary measure, even though the drought may, at its conclusion, turn out to be of lesser severity than one in 50 years.]	Partially achieved	We have developed further new water infrastructure option proposals in relation to the water-source development options reported on pages 10–11. No physical construction works have occurred. We consult customers annually about their requirement for new supply points to meet population movement within their boundaries. This year we completed work with Porirua and Wellington city councils to provide water to new subdivisions in Whitby and Grenada respectively.
Objective 1.2	Maintain the customers' service reservoirs above agreed minimum levels.		
Target 1.2.1	Meet the following criteria for each customer service reservoir supplied directly by GW Water each month: • Maintain at least 70% full for at least 90% of the time • Maintain at least 60% full for at least 98% of the time (Annual performance indicator) [**Note:** We assess compliance with this target by interrogating reservoir level data recorded at 15-minute intervals.]	Partially achieved 60% full target met for 498 of 512 reservoir-months (97.3%) 70% full target met for 500 of 512 reservoir-months (97.7%)	The 60% target was not achieved for 32 reservoir-months in total. However, 20 of these events were to accommodate customer requirements, such as maintenance. Of the remaining 12 events, five were due to inlet valve replacements, five due to level transmitter or communications failure and two due to reservoir outflow being faster than we could fill when 'usual' operating protocols had been altered. The 70% target was not achieved for 26 reservoir-months in total. However, 16 of these events were to accommodate customer requirements, such as maintenance. Of the remaining 10 events, six were due to inlet valve replacements, three due to level transmitter or communications failure and one due to reservoir outflow being faster than we could fill when 'usual' operating protocol had been altered. For 2007/08, performance for each of five storage sites that have two reservoirs was aggregated. As the two reservoirs at all but one of these sites have separate level monitoring and serve separate supply zones we have reverted to reporting each reservoir separately (apart from Onslow).
Objective 1.3	Maintain system pressure above agreed minimum levels.		
Target 1.3.1	Maintain the wholesale supply pressure into the Thorndon Zone above 85 m for 90% of the time each month and above 80 m and below 100 m for 98% of the time each month. (Annual performance indicator) [Note: We assess compliance with this target by interrogating pressure data recorded at 15-minute intervals.]	Partially achieved Above 80m and below 100m pressure target met for all 12 months Above 85m pressure target met for 10 of 12 months	Thorndon Zone pressure above 80m and below 100m for at least 99.8% of the time for each month (range = 99.8% to 100.0%). Thorndon Zone pressure was above 85m for 88.7% of October and 80.3% of November due to a problem with control of pressure reducing valves; we fixed this problem in November. For the remaining 10 months compliance ranged from 96.3% to 99.5%.
Objective 2.1	Comply with the microbiological, chemical and aesthetic requirements of the DWSNZ for water leaving the treatment plants.		
Target 2.1.1	Comply with the microbiological requirements of the DWSNZ 2005 (Revised 2008) for water leaving the treatment plants 100% of the time. (Annual performance indicator)	Achieved provisionally	The Regional Public Health unit of Hutt Valley District Health Board (HVDHB) has advised provisional microbiological compliance with the DWSNZ 2005 (Revised 2008) for our four water treatment plants.
Target 2.1.2	Comply with the chemical (P2) requirements of the DWSNZ for water leaving the treatment plants 100% of the time. (Annual performance indicator)	Achieved provisionally	The Regional Public Health unit of HVDHB has advised provisional chemical compliance with the DWSNZ 2005 (Revised 2008) for our four water treatment plants.

	Targets	Achievement 2008/09	Comment
Target 2.1.3	Comply with the aesthetic requirements of the DWSNZ for water leaving the treatment plants. (Annual performance indicator)	Achieved (but not externally assessed) HVDHB does not assess aesthetic compliance on an annual basis at present	We monitor for aesthetics and believe our records show all our treatment plants meet the compliance criteria, consistent with the DWSNZ and the Public Health Grading of Community Drinking-Water Supplies 2003. However, there is no provision for annual aesthetic compliance reporting in WINZ at present and HVDHB does not yet assess compliance on an annual basis. To date, the health authorities have only assessed aesthetic compliance when conducting grading assessments of our Te Marua and Wainuiomata treatment plants. Te Marua and Wainuiomata complied when last regraded (2006/07 and 2004/05 respectively). Both plants are graded 'A1'.
Target 2.1.4	Develop monthly compliance reports that source data directly from the control systems of the water treatment plants, by 31 December 2008.	Partially achieved	These reports are available for Te Marua, Wainuiomata and Waterloo treatment plants, but not yet for Gear Island.
Objective 2.2	Comply with the microbiological, chemical and aesthetic requirements of the DWSNZ for water in the distribution system.		
Target 2.2.1	Comply with the microbiological requirements of the DWSNZ for water in the distribution system 100% of the time. (Annual performance indicator)	Achieved provisionally	The Regional Public Health unit of HVDHB has advised provisional microbiological compliance to the DWSNZ 2005 (Revised 2008) for our three bulk distribution zones.
Target 2.2.3	Comply with the aesthetic requirements of the DWSNZ for water in the distribution system. (Annual performance indicator)	Achieved provisionally	We monitor for aesthetics and believe that our records for the year show our distribution system fully met the compliance criteria, consistent with the DWSNZ and the Public Health Grading of Community Drinking-Water Supplies 2003. However, there is no provision for annual aesthetic compliance reporting in WINZ at present and HVDHB does not yet assess compliance on an annual basis. HVDHB assessed aesthetic compliance as part of the grading process for our three bulk distribution zones in the last quarter of 2006/07. All zones were graded 'a1' in the first quarter of this year.
Target 2.2.4	Replace the DCS control system at Te Marua Water Treatment Plant	Partially achieved	Final project commissioning was underway at 30 June 2009. We expect to complete this work by September 2009 (see also page 20).
Objective 3.1	Add fluoride to treated water in accordance with Ministry of Health recommendations in the DWSNZ, unless our customers specifically request that un-fluoridated water be supplied and it is practicable to do so.		
Target 3.1.1	For fluoridated supplies comply with Ministry of Health recommendations for the addition of fluoride 85% of the time. (Annual performance indicator)	Not achieved	Compliance by treatment plant: Te Marua 94%, Wainuiomata 86%, Waterloo (Naenae) 48%, Waterloo (Gracefield) 42%, Gear Island 94%. The isolation of Naenae reservoir between 26 October and 22 February after a contamination alert was the main factor behind our not achieving this target for Naenae and Gracefield. The dose control programming changes required to accommodate the changed distribution arrangement to the Naenae zone were complex and would have affected work on other projects. Instead, fluoride dosing was stopped for that period. It was also stopped during May and June to accommodate further work on Naenae Reservoir and an upgrade of fluoride equipment at Waterloo.
Objective 4.1	Manage assets wisely.		
Target 4.1.1	Keep asset information up to date, by adding information about newly created or refurbished assets by 31 August following the end of the financial year.	Achieved	All new and refurbished asset data was entered on GW Water's asset management system by 24 July 2009.
Target 4.1.2	Carry out a condition assessment of assets that have reached 90% of their economic life within one year of that event (that is, the life recorded in the Hansen asset management system primarily for the purpose of calculating loss of service potential) by 30 September each year.	Not achieved	In parallel with the process of consolidating our asset and financial management within the SAP management system, we have started to reassess the condition of all our assets – in line with National Asset Management steering group guidelines – over a three-year period. We will record revised asset 'lives' in SAP.
Target 4.1.3	Replace or refurbish assets before failure reduces levels of service (refer to objectives 1.2, 1.3, 2.1 and 2.2). (Annual performance indicator)	Mainly achieved	Minor equipment failures contributed to our narrowly missing self-imposed reservoir level targets for a handful of reservoir-months (see QMS target 1.2.1). Equipment failures also resulted in a Thorndon supply pressure target not being achieved (see QMS target 1.3.1).
Objective 4.2	Practice prudent financial management.		
Target 4.2.1	Net debt to levy ratio does not exceed target level of 220%. (Annual performance indicator)	Achieved	Debt to levy ratio 180% at 30 June 2009.
Target 4.2.2	Ensure that the asset value recorded in the financial statements is materially correct by capitalising completed capital projects each financial year and conducting regular revaluations as set out in New Zealand Infrastructure Asset Valuation and Depreciation Guide. (Annual performance indicator)	Achieved	Our assets were revalued in December 2008, as per the requirements of New Zealand Infrastructure Asset Valuation and Depreciation Guide.

	Targets	Achievement 2008/09	Comment
Target 4.2.3	Ensure that the annual actual direct operating costs do not exceed the budgeted value. (Annual performance indicator)	Achieved	Annual direct operating costs were $14.7 million (M), compared with a budget of $15.3M.
Target 4.2.4	Consult with the customer territorial authorities regarding the content of each annual capital works programme by 30 June each year. (Annual performance indicator)	Not achieved	Proposed capital works programme for 2009/10 was presented to customers for feedback on 8 July 2009.
Target 4.2.5	Ensure that the annual capital works programme is completed within budget. (Annual performance indicator)	Achieved	Expenditure on the annual Capital Works Programme was $4,938,000 against a budget of $5,007,000. $533,000 was rebudgeted into 2009/10 to fund completion of projects.
Target 4.2.6	Ensure that 90% of the major capital works projects nominated in the annual Operating Plan does not exceed the approved funding plus 20%. (Annual performance indicator)	Not achieved	89% of the 28 capital works projects in the Operating Plan for 2008/09 met the criterion of not exceeding budget plus 20%. Three projects exceeded budget by more than 20%.
Target 4.2.7	Maintain and actively manage insurance policies or reserve funds, so that the financial impact of any natural disaster is minimised. (Annual performance indicator)	Achieved	GW Water has an asset contingency reserve fund in relation to the Stuart Macaskill Lakes (Te Marua) and its distribution network. This insurance investment reserve fund stood at $14.5M at 30 June 2009. It also has a specific insurance policy to cover additional funding requirements in the event of a major natural disaster. All other significant assets are covered by insurance policies that cover the replacement costs, which are updated annually.
Target 4.2.8	Consult with the customer territorial authorities regarding the content of each proposed annual plan and Long-term Council Community Plan (LTCCP) by 30 June each year. (Annual performance indicator)	Achieved	GW Water consulted with its four customers about the Bulk Water Supply Development Strategy projects included in the proposed 10-Year Plan 2009-19. GW also initiated consultation about a proposed region-wide water management strategy, which could affect the timing for identified development projects. Separately, GW invited submissions to its proposed 10-Year Plan 2009-19 (incorporating the 2009/10 Annual Plan) from its water supply customers.
Target 4.2.9	Achieve unit costs (both total and operating) per million litres of water produced that are comparable with other bulk suppliers operating under similar conditions. This is to be reported annually and subject to comparable organisations providing suitable information. (Annual performance indicator)	Achieved	Costs benchmarked with Watercare Services (Auckland) see page 48.
Target 4.2.10	Install diesel dispensing pumps at Wainuiomata, Te Marua and Waterloo treatment plants by 30 June 2009.	Achieved	
Objective 5.2	The Te Marua and Wainuiomata water treatment plants will each obtain an 'A1' grading.		
Target 5.2.1	Te Marua and Wainuiomata water treatment plants will maintain all requirements for an 'A1' grading.	Achieved	
Objective 5.3	The Waterloo Water Treatment Plant will retain its 'B' grading, unless Hutt City Council changes its policy of supplying unchlorinated water to Central Lower Hutt, Petone and Eastbourne.		
Target 5.3.1	Waterloo Water Treatment Plant will maintain all requirements for a 'B' grading.	Achieved	Hutt City Council prefers to receive an unchlorinated supply for Central Lower Hutt, Petone and Eastbourne. This requirement means 'B' is the highest grading achievable.
Objective 5.4	The Gear Island Water Treatment Plant will obtain an 'A' grading.		
Target 5.4.5	Collect 12 months of compliant FAC data by 31 December 2008.	Not achieved	While the Gear Island treatment plant complies with the drinking water standard by virtue of its secure groundwater status, achievement of an 'A' grading requires chlorination. The water is chlorinated before it leaves the plant, but full compliance with all aspects of the chlorination rules has not yet been achieved over the required 12-month period. Recent operational changes at Waterloo treatment plant should contribute to reduced turbidity of water at Gear Island (see page 19). We have started to assess the requirements for an 'A1' grading against the updated (2008) drinking water standards and expect to complete that process in the coming year.
Objective 7.1	An environmental management system certified under the terms of ISO 14001:2004 – Environmental Management Systems – Specification with guidance for use – will be maintained.		
Target 7.1.1	Maintain certification to ISO 14001:2004. (Annual performance indicator)	Achieved	Certification was reconfirmed following a triennial audit by BVQI in January 2009.

Environmental management system

ENVIRONMENTAL MANAGEMENT SYSTEM – OBJECTIVES, TARGETS AND PERFORMANCE

Text in the two columns to the right of each target gives (1) a summary of performance against the target for the 2008/09 financial year, and (2) additional background information where needed

	Targets	Achievement 2008/09	Comment
Objective 1.1	Be aware of all legislation, regulations, bylaws and standards that are relevant to the environmental performance of GW Water.		
Target 1.1.1	Maintain a file of all resource consents issued to GW Water and regularly update it by 30 June each year. (Annual performance indicator)	Achieved	
Objective 1.2	Comply with all legislation, regulations, bylaws and standards that are relevant to the environmental performance of GW Water.		
Target 1.2.1	Obtain all necessary resource consents and building permits for new work or changes to the operation of the system. (Annual performance indicator)	Achieved	Records held by the Management Systems Co-ordinator. During the year, GWRC Environment division, the resource consent manager, made a ruling that dewatering trenches at a flow rate greater than 2.5 litres per second constituted the "taking" of groundwater, and required consent. An application for a global consent to cover trenching operations over the whole region is in preparation.
Target 1.2.2	Obtain and keep up-to-date all necessary trade waste permits by their respective expiry dates. (Annual performance indicator)	Achieved	Trade waste permits are held for Te Marua and Wainuiomata water treatment plants.
Target 1.2.3	Obtain and keep up to date all necessary location test certificates by their respective expiry dates. (Annual performance indicator)	Achieved	
Target 1.2.4	Keep all building warrants of fitness up to date by their respective expiry dates. (Annual performance indicator)	Achieved	
Target 1.2.5	Review and implement the new hazardous substance component of the Hazardous Substance and New Organism Act by the dates required by regulation.	Achieved	
Objective 1.3	Report compliance with all legislation, regulations, bylaws and standards that are relevant to the environmental performance of GW Water.		
Target 1.3.1	Demonstrate compliance with all resource consents. (Annual performance indicator)	Mainly achieved (provisional)	The preliminary compliance report from the consent manager notes two non-complying incidents in relation to the 83 consents held. Abstraction from the Orongorongo River and its tributaries did not meet the requirement to retain a minimum residual flow downstream of these abstractions for a short time on 22 January, due to a faulty air valve. Also, we did not provide the required 48 hours notice of a permitted discharge of partially treated water on a single occasion.
Target 1.3.2	Carry out and report all monitoring required by resource consents annually or to timeframes required by consent conditions. (Annual performance indicator)	Achieved	
Target 1.3.3	Determine and report annually all monitoring required by hazardous substance legislation, where matters are not covered by resource consents. (Annual performance indicator)	Achieved	See targets 1.2.3 and 1.2.5.
Objective 2.1	Identify all activities with environmental impacts and assess the significance of these impacts.		
Target 2.1.1	Maintain a written procedure for identifying aspects and impacts and evaluating their significance. (Annual performance indicator)	Achieved	We review this target on an annual basis as part of our management systems review.
Objective 2.2	For new projects or activities, consider environmental aspects when choosing between alternatives.		
Target 2.2.1	Options reports, feasibility reports and design reports for all capital projects initiated shall include consideration of environmental effects, including their avoidance or mitigation. (Annual performance indicator)	Achieved	While the environmental impacts for most capital works are minor, proposed new source development projects potentially have significant environmental impacts. We have arranged several environmental studies as part of the investigation of these projects. The potential impacts on the Hutt River of reducing the residual flow at Kaitoke were investigated further during the year.
Objective 3.1	Adopt all practicable means to prevent pollution of the environment.		
Target 3.1.1	Monitor and report on accidental discharges of substances with the potential of harming the environment at all treatment plants annually. (Annual performance indicator)	Achieved	Comprehensive spillage control measures, including bunding and managed sumps, are in place at all GW Water's treatment plants.

	Targets	Achievement 2008/09	Comment
Objective 3.2	Treat and dispose of wastes in an environmentally safe manner.		
Target 3.2.1	Comply with trade waste permit conditions for the tenure of each permit and report annually. (Annual performance indicator)	Achieved	We hold trade waste licences for Te Marua and Wainuiomata water treatment plants. Hutt City Council's Trade Waste section carries out an annual compliance audit.
Target 3.2.2	Comply with the requirements of all discharge consents. (Annual performance indicator)	Mainly achieved (provisional)	GWRC Environment division provided preliminary advice that we did not comply in regard to a single permitted discharge of partially treated water, as we did not give 48 hours notice prior to the discharge.
Target 3.2.3	Dispose of sludge and other solid waste to a properly consented landfill or in some other environmentally safe manner. (Annual performance indicator)	Achieved	Sludge and solid waste are sent to a consented landfill at Silverstream.
Target 3.2.5	Dispose of liquid waste in an environmentally safe manner. (Annual performance indicator)	Achieved	Trade waste contractors manage the treatment and disposal of our liquid waste in accordance with the conditions of their trade waste licences, issued by their local territorial authority.
Objective 3.3	Adopt policies, procedures and practices that will reduce waste.		
Target 3.3.1	Review operation of the wastewater plant at Wainuiomata treatment plant to optimise performance, by 30 June 2009.	Achieved	We completed the operational review during 2007/08. Recommendations for changes to the operation of the wastewater plant have been implemented. Solid waste (tonnes) by volume of production from Wainuiomata was 20% lower year on year. Some further fine tuning is still required.
Target 3.3.2	Investigate reuse or volume reduction for waste lime at Wainuiomata treatment plant, by 30 June 2009.	Achieved	Reduced liquid waste (lime) volumes resulted in a 25% reduction in disposal costs. Some further fine tuning is still required (see page 19).
Target 3.3.3	Investigate options for increasing the solids content of sludge by 30 June 2009.	Achieved	See comment for target 3.3.1.
Objective 4.1	Recognise the natural limits of regional water resources.		
Target 4.1.1	Accurately monitor and investigate adverse trends in losses between abstraction, production and supply. Any losses are to be reported annually.	Achieved	No adverse trends evident from production efficiency performance (see page 15) or distribution efficiency performance (see page 7).
Target 4.1.2	Further investigations of losses between Kaitoke and Te Marua to be undertaken by 31 December 2009	In progress	We suspect some of this apparent loss is due to inaccuracies with data transmission from Kaitoke intake to the Te Marua treatment plant and scaling issues between different SCADA hardware. We will reassess this once the control system upgrade for Te Marua is complete (see page 15).
Objective 4.2	Minimise energy use.		
Target 4.2.1	Each month monitor the power usage at those sites with half hour power meters to check for discrepancies. (Annual performance indicator)	Achieved	
Target 4.2.2	Every two years review the efficiency of the boost and treatment pumps at: • Colin Grove • Hautana Street • Mahoe Street • Penrose Street No. 1 • Penrose Street No. 2 • Willoughby Street No. 1 • Willoughby Street No. 2 • Kaiwharawhara Pumping Station • Te Marua Pumping Station • Waterloo Water Treatment Plant (Annual performance indicator)	Partially achieved	We have not tested all of these listed pumps in the past two years. However, our thinking about an appropriate testing regime is evolving. We will be reviewing our pump efficiency-testing programme in 2009/10 to ensure it (and related targets) appropriately balance the cost of testing with the potential savings from refurbishment. This year we tested the performance of the Te Marua boost pumps using thermodynamic equipment. The best efficiency of two of the three boost pumps were 13% and 9% down on the original 'as new' performance. The potential energy savings from refurbishing both pumps is estimated to be up to $25,000 p.a. with a payback period likely to be less than two years. We plan to refurbish these pumps during 2009/10. Following a benchmarking exercise with the Victorian Water Industry Association during 2007/08, we have decided to increase the number of pumps to which this form of desktop analysis is applied. This will be made possible by installing delivery pressure transmitters on eight pumping stations that currently do not have this equipment. We purchased pressure transmitters this year and will install them during 2009/10. In future, we intend to use benchmarking results to track degradation in overall pump performance and assist with prioritising testing resources. We anticipate it will take several years of data collection before trends emerge.

	Targets	Achievement 2008/09	Comment
Target 4.2.3	Every five years review the efficiency of the boost and treatment pumps at: • Johnsonville Pumping Station • Karori Pumping Station • Point Howard Pumping Station • Moores Valley Pumping Station • Ngauranga Pumping Station • Warwick Street Pumping Station • Te Marua Water Treatment Plant • Wainuiomata Water Treatment Plant • Wainuiomata No. 1 Pumping Station (Annual performance indicator)	Achieved	Last reviews completed by 30 June 2006. See also target 4.2.2 comment
Target 4.2.4	Adopt the use of energy-efficient products and equipment, where practicable and economic. (Annual performance indicator)	Achieved	Major items of electrical equipment are assessed on a whole-life cost basis. Our electric drive motors are already close to 100% efficient and the pumps we purchase are over 80% efficient, the best currently available. The 'pump as turbine' project to generate electricity at Te Marua was near completion at 30 June 2009, while investigations of other hydro-generation options were advanced during the year (see page 18).
Target 4.2.5	Install hydro generation capability at Te Marua pumping station by 30 June 2009.	Partially achieved	We expect the 'pump as turbine' project to be fully commissioned by the end of September 2009 (see also 'Power generation – Te Marua' page 17).
Objective 5.1	Prevent damage to significant habitats and ecosystems.		
Target 5.1.1	Recognise the need to maintain appropriate minimum river flows and, as far as practicable, natural flow variation in watercourses below points of abstraction. (Annual performance indicator)	Achieved	Our resource consents to take water and the control logic for operating software systems have minimum flow and flow-sharing arrangements written into them. We arranged for comprehensive scientific studies on the Hutt River, to establish habitat requirements and appropriate minimum flows in relation to our proposal to seek resource consent to reduce the minimum flow requirement downstream of our Kaitoke Weir. See also 'More water from the Hutt River' page 10.
Target 5.1.2	Avoid damage to significant ecosystems by new capital works or, if this is unavoidable, mitigate the damage by establishing, if practicable, equivalent replacement ecosystems. (Annual performance indicator)	Achieved	We did not undertake new capital works that affected significant ecosystems. During the year responsibility for water supply matters passed from the Parks, Forests and Utilities Committee to the Regional Sustainability Committee.
Objective 6.1	All recommendations made by the Parks, Forests and Utilities Committee involving investment or the use of natural resources shall include consideration of environmental impacts.		
Target 6.1.1	All reports to the Parks, Forests and Utilities Committee or the Divisional Manager, Water Supply, Parks & Forests, proposing investment or use of physical resources shall address the environmental aspects of the proposal, including any practicable alternative courses of action. (Annual performance indicator)	Achieved	Consistent with Greater Wellington Regional Council policy, assessment of environmental impacts is included in all reporting. During the year responsibility for water supply matters passed from Parks, Forests and Utilities Committee to the Regional Sustainability Committee.
Objective 7.1	Achieve environmental awareness in all GW Water staff.		
Target 7.1.1	Provide initial training for all new GW Water staff in environmental awareness and the environmental management system within three months of starting employment. (Annual performance indicator)	Achieved	
Objective 7.2	Ensure that all staff members whose actions have potential environmental impacts understand that potential.		
Target 7.2.1	Provide specific training to staff whose actions have potential environmental impacts, to ensure they understand those potential impacts and their significance, and are equipped to eliminate or mitigate any impact. (Annual performance indicator)	Achieved	We have three levels of environmental awareness training, depending on the duties of employees. Specific training is given and the details are recorded in a training database against individual employees.
Objective 8.1	Ensure that third parties engaged by GW Water are aware of environmental matters or concerns associated with their work for us.		
Target 8.1.1	All formally documented works and supply contracts shall include any applicable environmental requirements. (Annual performance indicator)	Achieved	All works and sealed contracts included clauses covering environmental matters, including requirements to prevent or minimise adverse impacts.
Objective 8.2	Where practicable, the environmental performance of a contractor or supplier shall be taken into account in the assessment of tenders.		
Target 8.2.1	Include environmental performance as an attribute when assessing tenders for major works or supply contracts by the weighted attribute method. (Annual performance indicator)	Achieved	We use the weighted attribute assessment method, including environmental performance, to assess all tenders for major works.
Objective 9.1	Report annually on resource consent compliance.		
Target 9.1.1	Facilitate the preparation of the Environmental Regulation department's annual compliance report. (Annual performance indicator)	Achieved	
Objective 9.2	Report annually on the environmental performance of GW Water.		
Target 9.2.1	Prepare an annual report for the year ending 30 June on the environmental performance of GW Water, by 30 November. (Annual performance indicator)	Achieved	The report was completed prior to 30 November but was not approved by the Council until 8 December 2008.

Financial overview

Wellington experienced a wetter summer and cooler autumn than normal. This helped offset the high demand for water during spring, when drier conditions prevailed.

Overall, the water supply system was not tested as it had been in the previous year. We supplied 54,228 million litres of potable water, 2.5% less than the previous year's total. This is the lowest supply volume since 1999/2000.

Financial highlights

Greater Wellington Water produced a satisfactory financial outturn as these key measures demonstrate:

- Operating deficit lower than budget at $0.116 million (budgeted deficit $1.46M)
- Total operating costs lower than budget - $25.8 million (budget $26.5M)
- Interest costs held at $3.5 million (budget $3.8M)
- Debt reduced to $42.3 million (budget $42.5M)

Operating revenue

We received additional revenue from the New Zealand Transport Agency for the use of a pipeline between Ngauranga and Petone ($284,000) and from Citylink for the use of a communication duct between Thorndon and Petone. Porirua City Council gifted the new branch main at its Bradey Reservoir to Greater Wellington, at a transfer value of $370,000. These items had not been specifically budgeted.

Operating costs

Personnel costs were some $250,000 below budget, due to staff vacancies and staff time being charged to the corporate SAP asset management system project.

Materials and supplies came in at $130,000 below budget. Lower spending on power, rates, and chemicals was offset slightly by increased insurance premiums. Chemical costs were contained, despite a marked increase in prices.

We have also increased our insurance policy for maximum earthquake damage.

Financial costs

Interest charges were lower because the opening debt position was lower than budgeted. As a result, finance costs were some $279,000 below budget.

The self insurance funds investment income came in at $966,000, slightly lower than anticipated because of the lower interest rates prevailing.

Revaluation of water assets and depreciation charge

The Local Government Act 2002 requires that we comply with New Zealand International Financial Reporting Standards (NZ IFRS). New Zealand's equivalent to the International Accounting Standard 16 is NZ IAS 16: Property, Plant and Equipment. Under this accounting standard a valuation of assets needs to be carried out or reviewed regularly by independent qualified valuers. A valuation is typically undertaken once every five years.

CB Richard Ellis Ltd undertook a valuation of the Water Supply property, plant and equipment assets during the year. As at 30 June 2008, the estimated replacement cost of these assets was $558 million, with an estimated book value of $322 million. Overall, the net change in the book value of the assets was $48.3 million, an increase of 17.5%. The depreciation charge for the year was $7,529,000.

Capital expenditure

Capital expenditure came in at $4.9 million compared with a budget of $5.1 million. Several major projects target reduced operating costs in the future, including:

- A sodium hypochlorite plant was built at Te Marua, to produce disinfection chemical. Costs were $674,000
- A project to generate electricity when the Te Marua storage lakes are being filled. Costs were 273,000

Cash flow

Cash flow from operating activities for the year was $7.6 million. This is in line with the previous year ($7.6M).

Financial position

GW Water's financial position is sound, with assets of $351 million (previously $305M) and liabilities of $47 million (previously $47M). Total debt is at $42 million (previously $43M).

FINANCIAL SUMMARY

	June 2009 Actual $000	June 2008 Actual $000	June 2007 Actual $000	June 2006 Actual $000	June 2005 Actual $000
Operating revenue	25,729	25,157	24,395	24,130	24,274
Depreciation	7,529	6,241	6,175	6,331	6,563
Financial costs	3,453	3,491	3,268	3,176	3,295
All other operating expenditure	14,863	14,204	15,315	14,682	13,543
Operating surplus/(deficit)	**(116)**	**1,221**	**(363)**	**(59)**	**873**

Financial statements

COMPREHENSIVE INCOME STATEMENT

For the year ended 30 June

	Notes	2009 Actual $000	2009 Budget $000	2008 Actual $000
Operating revenue				
Water supply levies		23,460	23,460	23,460
Internal revenue		278	269	252
Other revenue (interest & external)		1,991	1,346	1,445
Total operating revenue		**25,729**	**25,075**	**25,157**
Operating expenditure				
Personnel costs		3,933	4,183	3,670
Contractor & consultant costs		1,838	1,948	1,875
Internal consultant costs	2	886	972	961
Interest costs		3,453	3,750	3,491
Depreciation		7,529	7,541	6,241
Loss / (gain) on sale		165	(14)	128
Movement in doubtful debt provision		–	–	(21)
GWRC overhead charge		984	984	853
Operating expenditure	3	7,057	7,175	6,738
Total operating expenditure		**25,845**	**26,539**	**23,936**
Net surplus for the year		**(116)**	**(1,464)**	**1,221**
Other comprehensive income				
Unrealised revaluation gains		45,310	–	(69)
Other reserve and equity movements		5	–	19
Total comprehensive income for the year		**45,199**	**(1,464)**	**1,171**

STATEMENT OF MOVEMENTS IN EQUITY

For the year ended 30 June

	2009 Actual $000	2009 Budget $000	2008 Actual $000
Equity as at 1 July	**258,479**	**315,513**	**257,258**
Total comprehensive income for the year	45,199	(1,464)	1,171
Other reserve and equity movements	(5)	–	50
Equity as at 30 June	**303,673**	**314,049**	**258,479**
Components of equity			
Closing accumulated funds	202,190	194,063	202,311
Closing other reserves	24	–	19
Closing asset revaluation reserves	101,459	119,986	56,149
Equity as at 30 June	**303,673**	**314,049**	**258,479**

The accompanying notes and accounting policies should be read in conjunction with these financial statements

BALANCE SHEET
As at 30 June

	Notes	2009 Actual $000	2009 Budget $000	2008 Actual $000
Equity				
Closing accumulated funds as at 30 June		**303,673**	**314,049**	**258,479**
Represented by:				
Non-current liabilities				
Public debt	5	42,287	46,140	42,710
Total non-current liabilities		**42,287**	**46,140**	**42,710**
Current liabilities				
Accounts payable		978	1,474	1,376
Employee entitlements		634	564	564
GWRC treasury payables	4	2,974	1,936	1,966
Total current liabilities		**4,586**	**3,974**	**3,906**
Total liabilities		**46,873**	**50,114**	**46,616**
Non-current assets				
Property, plant and equipment	6	331,232	345,559	288,279
Intangible assets	7	275	149	149
Investments	8	14,478	14,481	12,761
Total non-current assets		**345,985**	**360,189**	**301,189**
Current assets				
Accounts receivable		2,453	2,279	1,934
Stocks	9	1,802	1,591	1,657
Accrued revenue		306	104	315
Treasury receivables		–	–	–
Total current assets		**4,561**	**3,974**	**3,906**
Total assets		**350,546**	**364,163**	**305,095**
TOTAL NET ASSETS		**303,673**	**314,049**	**258,479**

The accompanying notes and accounting policies should be read in conjunction with these financial statements

FUNDING STATEMENT

For the year ended 30 June

	Notes	2009 Actual $000	2009 Budget $000	2008 Actual $000
Funds from operating activities				
Funds were provided from:				
Levies received		23,460	23,460	23,460
Interest received		966	1,027	1,020
Other revenue		1,303	588	677
		25,729	**25,075**	**25,157**
Funds were applied to:				
Payments to suppliers and employees		14,698	15,261	14,094
Interest paid on public debt		3,453	3,750	3,491
		18,151	**19,011**	**17,585**
Net funds from operating activities	**10**	**7,578**	**6,064**	**7,572**
Funds from investing activities				
Funds were provided from:				
Proceeds from sale of non-current assets		10	24	30
		10	**24**	**30**
Funds were applied to:				
Purchase of non-current assets		510	200	89
Capital projects		4,938	5,007	3,743
		5,448	**5,207**	**3,832**
Net funds from investing activities		**(5,438)**	**(5,183)**	**(3,802)**
Funds from financing activities				
Funds were provided from:				
Appropriations / new loans		4,983	5,007	3,784
Transfer from reserves		–	–	–
		4,983	**5,007**	**3,784**
Funds were applied to:				
Repayment of public debt		5,406	4,130	5,789
Transfer to reserves		5	(19)	–
Investment additions		1,712	1,777	1,765
Repayment of current account		–	–	–
		7,123	**5,888**	**7,554**
Net funds from financing activities		**(2,140)**	**(881)**	**(3,770)**
Net increase in funds held		–	–	–
Add opening funds brought forward		–	–	–
Ending funds carried forward		**–**	**–**	**–**

The accompanying notes and accounting policies should be read in conjunction with these financial statements

Notes to the financial statements

For the year ended 30 June

1. STATEMENT OF ACCOUNTING POLICIES

A Reporting entity

The Greater Wellington Regional Council is a regional local authority governed by the Local Government Act 2002. For the purposes of financial reporting Greater Wellington is designated as a public benefit entity. The entity, Greater Wellington Water (GW Water) is part of the Water Supply, Parks and Forests division of Greater Wellington Regional Council. GW Water collects, treats and distributes potable water to the four territorial authority customers.

These financial statements do not include any transactions arising from Greater Wellington's parks and forests activities and investments.

B Statement of compliance

These financial statements have been prepared in accordance with the requirements of the Local Government Act 2002 and New Zealand Generally Accepted Accounting Practices (NZ GAAP).

These financial statements are prepared in accordance with New Zealand equivalents to the International Financial Reporting Standards (NZ IFRS), as appropriate for public benefit entities.

Accounting judgements and estimations

The preparation of financial statements in conformity with NZ GAAP requires management to make judgments, estimates and assumptions that affect the application of policies and reported amounts of assets and liabilities, income and expenses. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances. These results form the basis of making the judgments about carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised, when the revision affects only that period. If the revision affects current and future periods, it is reflected in those periods.

C Accounting policies

Basis of preparation

The financial statements are presented in New Zealand dollars, rounded to the nearest thousand. The financial statements have been prepared on a historical cost basis except for certain infrastructural assets that have been measured at fair value. The accounting policies set out below have been applied consistently to all periods presented in these financial statements.

The following particular accounting policies, which materially affect the measurement of results and financial position, have been applied.

Budget figures

The budget figures are those approved by the Council at the beginning of the year in the Annual Plan. The budget figures have been prepared in accordance with NZ GAAP, using accounting policies that are consistent with those adopted by Greater Wellington for the preparation of these financial statements.

Water supply levies

Levies, a statutory annual charge, represent charges to the territorial authorities for the collection, treatment and distribution of potable water. Levies are recognised in the year the charges are raised.

Property, plant and equipment

Property, plant and equipment consists of operational and infrastructure assets. Expenditure is capitalised when it creates a new asset or increases the economic benefits over the total life of an existing asset. Costs that do not meet the criteria for capitalisation are expensed.

The initial cost of property, plant and equipment includes the purchase consideration and those costs that are directly attributable to bringing the asset into the location and condition necessary for its intended purpose.

Regional water supply property, plant and equipment are categorised into the following classes:

- Infrastructural assets
- Administrative buildings
- Minor equipment
- Motor vehicles
- Capital work in progress

All property, plant and equipment are initially recorded at cost.

Stocks

Chemical stocks and spares used for maintenance and construction purposes are valued at the lower of cost or net realisable value on a first-in first-out basis. This valuation includes allowances for slow-moving and obsolete stocks.

Depreciation

Depreciation is provided on a straight-line basis on all tangible property, plant and equipment other than land and capital works in progress, at rates that will write off assets, less their estimated residual value over their remaining useful lives. The useful lives of regional water supply assets have been estimated as follows:

- Infrastructural assets: 3 to 150 years
- Administrative buildings: 10 to 50 years
- Minor equipment: 3 to 15 years
- Vehicles: 5 to 10 years

Capital work in progress is not depreciated.

Intangible assets

Software is carried at cost less any accumulated amortisation and impairment losses. It is amortised over the useful life of the asset: 1 to 5 years.

Accounts receivable

Accounts receivable are stated at estimated net realisable value after allowing for a provision for doubtful debts. Specific provisions are maintained to cover identified doubtful debts. All known losses are expensed in the period in which it becomes apparent that the receivables are not collectable.

Goods and services tax

All items in the financial statements are stated net of GST, with the exception of receivables and payables, which are stated as GST inclusive.

Employee entitlements

A provision for employee entitlements is recognised as a liability in respect of benefits earned by employees, but not yet received at balance date. Employee benefits include salaries, annual leave and long service leave. Where the benefits are expected to be paid for within 12 months of balance date, the provision is the estimated amount expected to be paid by Greater Wellington. The provision for other employee benefits is stated at the present value of the future cash outflows expected to be incurred. Obligations for contributions to defined contribution superannuation schemes are recognised as an expense in the Income Statement as incurred.

Funding statement

The following are the definitions of the terms used in the funding statement:

- Cash means cash balances on hand, held in bank accounts, demand deposits and other highly liquid investments in which Greater Wellington invests as part of its day-to-day cash management
- Operating activities include cash received from all income sources of Greater Wellington and the cash payments made for the supply of goods and services
- Investing activities are those activities relating to the acquisition and disposal of non-current assets
- Financing activities comprise the change in equity and debt capital structure

Changes in accounting policies

There have been no changes from the accounting policies adopted in the last audited financial statements.

2. Internal consultant costs and revenue

All significant internal charges between departments of GW Water have been eliminated. The internal consultant costs and revenue lines arise from GW Water's activities with other divisions within Greater Wellington.

3. Operating expenditure

Operating expenditure comprises payments for transportation costs, plus materials and supplies, such as chemicals and power.

4. Balance sheet – presentation of working capital

GW Water does not operate a separate bank account. All transactions are processed through the Greater Wellington Regional Council accounts. Such amounts are described as GWRC treasury payables.

5. Long-term public debt

	2009 Actual $000	2008 Actual $000
Balance at 1 July	42,710	44,696
New loans	4,983	3,784
Operating cash surplus applied to debt repayment	(5,406)	(5,770)
Balance at 30 June	**42,287**	**42,710**

All public debt obligations are fully secured against the rateable property of Greater Wellington Regional Council. The interest rate charged on the facility at 30 June 2009 was 7.00% p.a. (7.95% p.a. at 30 June 2008). GW Water uses any operating cash surpluses to retire debt.

6. Property, plant and equipment

2009	Deemed cost $000	Revaluation reserve $000	Accumulated depreciation $000	Net book value $000
Land	2,925	4,941	–	7,866
Water supply infrastructure	231,845	96,520	7,225	321,140
Office equipment	307	–	169	138
Plant and equipment	366	–	292	74
Motor vehicles	1,284	–	893	391
Work in progress	1,623	–	–	1,623
	238,350	**101,461**	**8,579**	**331,232**

2008	Deemed cost $000	Revaluation reserve $000	Accumulated depreciation $000	Net book value $000
Land	2,925	4,941	–	7,866
Water supply infrastructure	250,826	51,209	24,006	278,029
Office equipment	283	–	154	129
Plant and equipment	501	–	309	192
Motor vehicles	1,214	–	724	490
Work in progress	1,573	–	–	1,573
	257,322	**56,150**	**25,193**	**288,279**

Regional water supply plant and equipment assets were revalued by John Freeman, FPINZ, TechRICS, MACostE, registered plant and machinery valuer, a director of CB Richard Ellis, at 30 June 2008, using Optimised Depreciated Replacement Cost (ODRC) methodology. Water supply buildings were revalued by Paul Butcher, BBS, FPINZ, registered valuer, a director of CB Richard Ellis, at 30 June 2008, using ODRC methodology.

Further asset revaluations are planned and these will be undertaken regularly. Water supply infrastructure assets are defined as those assets that contribute directly to the supply and distribution of water and these are valued at their component levels respectively. GW Water's asset information system holds detailed valuation information on each item. Property, plant and equipment have been accounted for in accordance with NZ IAS 16.

7. Intangible assets

2009	Deemed cost $000	Revaluation reserve $000	Accumulated depreciation $000	Net book value $000
Computer software	1,022	–	747	275

2008	Deemed cost $000	Revaluation reserve $000	Accumulated depreciation $000	Net book value $000
Computer software	825	–	676	149

8. Investments

	2009 Actual $000	2008 Actual $000
Asset rehabilitation fund	14,454	12,742
General reserve	24	19
	14,478	**12,761**

The interest rate charged on the facility as at 30 June 2009 was 7.07 % p.a. (30 June 2008: 8.83% p.a.).

9. Stocks

	2009 Actual $000	2008 Actual $000
Chemicals	188	149
Capital spares	1,614	1,508
	1,802	**1,657**

10. Reconciliation of funds from operations to operating surplus

	2009 Actual $000	2008 Actual $000
Reported surplus / (deficit)	(116)	1,223
Add / (less) non-cash items:		
Depreciation	7,529	6,241
Doubtful debt provision reduced	–	(20)
Loss / (gain) on sale	165	128
Total non-cash items	**7,694**	**6,349**
Net cash flow from operating activities	**7,578**	**7,572**

11. Financial instruments

Currency risk

GW Water is not exposed to any foreign currency risk.

Credit risk

Financial instruments that expose GW Water to credit risk are principally bank balances, receivables and investments. A provision for doubtful receivables is maintained, and is monitored on a regular basis. Bank accounts are held with New Zealand-registered banks in accordance with GW Water's policy.

Concentration of credit risk

GW Water derives the majority of its income from the regional bulk water supply levy. Regional bulk water supply levies are collected from the region's four metropolitan city councils.

Interest rate risk

The GWRC Internal Treasury unit manages GW Water's debt. A fixed rate of interest is charged by the unit, which minimises the exposure of GW Water to interest rate fluctuations.

Fair values

The estimated fair values of all of the financial instruments of GW Water are the book value of those investments.

12. Related parties

GW Water contracts other divisions of Greater Wellington Regional Council for some operational services. All such transactions are carried out on normal commercial terms.

13. Contingencies

GW Water had no contingent liabilities as at 30 June 2009 ($185,000 at 30 June 2008).

14. Commitments

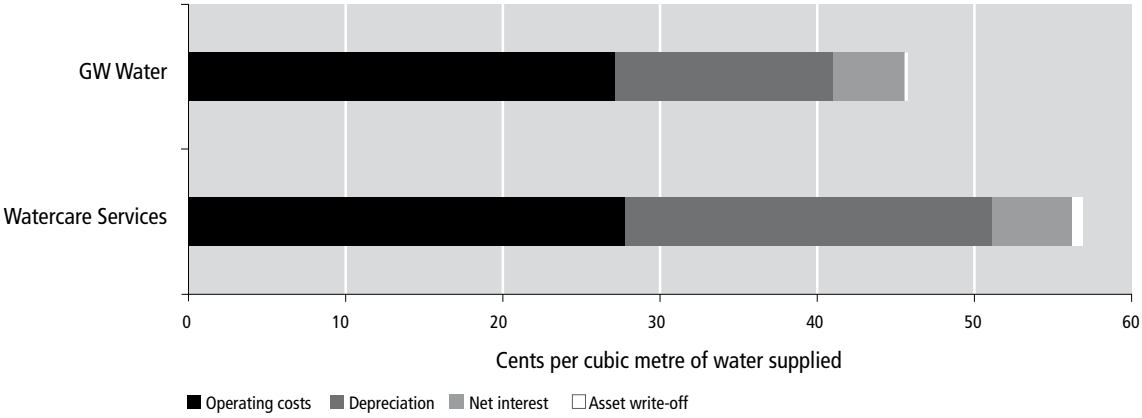
GW Water leases level four of the Regional Council Centre from Greater Wellington Regional Council on an arms-length basis. As at 30 June 2009 GW Water did not have any capital works programme-related contractual commitments ($nil at 30 June 2008).

Benchmarking of costs

We have compared GW Water's performance with that of Watercare Services Limited (Auckland), the only other water supplier in New Zealand that sells water to territorial authorities or their agents for on-sale, rather than selling to consumers directly. Although the two organisations work under substantially different conditions, Watercare provides the most meaningful performance comparison currently available. We would like to acknowledge their support in providing their comparative information.

The total operating costs shown for GW Water resulted in a deficit relative to the water levy paid by our territorial authority customers that is equivalent to 2.6 cents per cubic metre of water supplied. When other income is taken into account, the deficit is equivalent to 0.2 cents per cubic metre of supply. Watercare reported a net operating deficit before tax equivalent to 4.5 cents per cubic metre of water supplied.

POTABLE WATER SUPPLY COSTS
For the year ended 30 June 2009



Regional Sustainability Committee members

The following councillors were members of the Regional Sustainability Committee as at 30 June 2009.

In February 2009, the Council reviewed its committee structure and resolved a number of changes to rationalise the workload of the committees. With effect from 1 March 2009, the Parks, Forests and Utilities Committee was disestablished, with its water supply functions allocated to the Regional Sustainability Committee.

Alan McKenzie, the Department of Conservation representative on the Parks, Forests and Utilities Committee transferred to the Regional Sustainability Committee. He has speaking but not voting rights. The role of iwi representative Liz Mellish is the same as the elected members on the Committee – to consider the matters put before the Committee and to make decisions in the best interests of the region.

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Alan McKenzie
Appointee

Liz Mellish
Iwi appointee

Water, air, earth and energy – elements in Greater Wellington's logo combine to create and sustain life. Greater Wellington promotes **Quality for Life** by ensuring your environment is protected while meeting the economic, cultural and social needs of the community

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