

To be read in reference to  
Report 07.664

# Water Supply Annual Report

For the year ended 30 June 2007

Quality for Life



greater WELLINGTON | Water  
REGIONAL COUNCIL



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## Cover

The redundant lower dam at Wainuiomata (commissioned in 1884) has been modified to enable a new wetland area to be developed upstream of it. Shown here are; (1) the former water supply reservoir, with spillway in the foreground (circa 1920s); (2) an aerial view of the dam (spillway top left), with the planned wetland area superimposed; and (3) the recently refurbished and lowered spillway.

- 1                      Photos supplied by:  
                          (1) S C Smith Collection, Alexander Turnbull Library, Wellington, NZ. Reference G-47765-1/2  
2                      (2) Greater Wellington  
3                      (3) Juno Civil Ltd

## Introduction

### Reporting scope

This report covers the achievements and challenges for Greater Wellington Regional Council's wholesale water supply activity, Greater Wellington Water, for the period 1 July 2006 to 30 June 2007.

Greater Wellington's Annual Report 2007 meets its statutory reporting requirements. This report is supplementary to the annual report. We intend it to provide our territorial authority customers and other stakeholders with a more detailed account of our wholesale water supply operation.

The commentary on pages 3-13 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 results, consistent with a 'triple bottom line' approach, but is limited to 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 greater Wellington, 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 km of pipeline
- supply around 150 million litres of water daily on average – 1,730 litres every second – to meet the needs of about 370,000 people
- target at least an 'A' grade standard for our water treatment plants and distribution system, where consistent with customer requirements
- forecast future water needs and plan to ensure they can be met
- carry out our work with care for the environment
- manage infrastructure assets with a replacement value of \$445 million.<sup>3</sup>

Every week we supply enough water to completely fill Wellington's Westpac Stadium.

### Governance and organisation structure

The Wellington Regional Water Board Act (1972) defines Greater Wellington's wholesale water supply role. Regional councillors are responsible for setting policy; Greater Wellington's Utility Services Committee oversees the wholesale water supply work carried out by its Water Supply, Parks and Forests Division. Water Supply is organised into four main functional areas: Operations (production and distribution); Engineering Services (forecasting and planning, asset management, management systems, and project design and management); Marketing; and Support (financial, administrative and secretarial services). We ceased operating a laboratory business unit on 30 June 2007.

### Performance indicators

We have five long-term performance indicators (PIs) for wholesale 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 2006/07 start on page 25.

Greater Wellington's Amended 2006-16 Ten-Year Plan – *a sustainable region* – includes annual targets for each PI for the next two years (to 30 June 2009). The amended ten-year plan is available on our 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.

<sup>3</sup>At 30 June 2004, following the most recent independent valuation

## Financial performance

- Operating deficit \$1.6 million better than budgeted
- Debt reduced by \$0.3 million, due to lower-than-budgeted capital programme
- Water levy set to rise by three percent: the first increase since July 1997

**Total operating costs rose by 2.4 percent (\$0.6 million) compared with 2005/06.** This was due mainly to total contractor and consultant costs increasing by 64 percent, as investigations of potential new water sources were stepped up (see page 7). However, power costs were similar to those for 2005/06, while chemical costs were reduced by 15 percent, resulting in part from the strong New Zealand dollar and various usage reduction and efficiency projects (see pages 4-6). Net financial costs also continued to fall.

**An operating deficit of \$0.4 million was recorded.** This result is \$1.6 million ahead of the budgeted deficit of \$2.0 million, primarily due to lower-than-anticipated capital expenditure and operational cost savings. (QMS target 4.2.3, page 40)

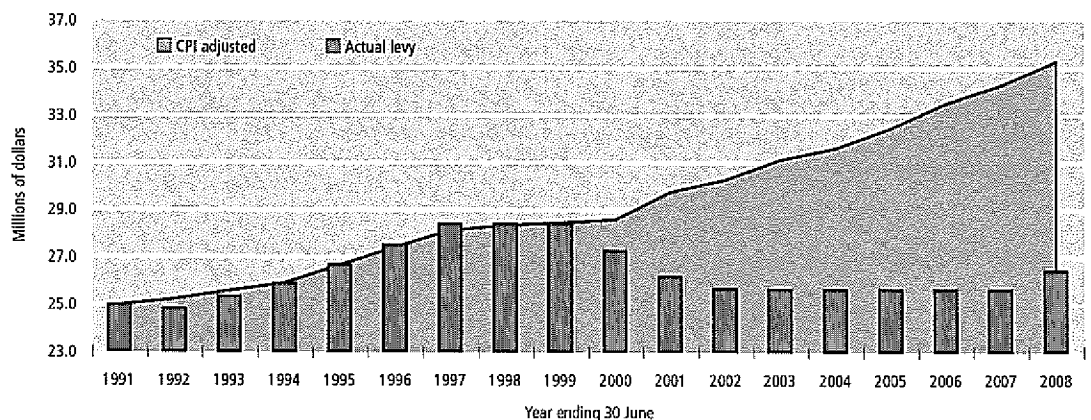
**Debt was reduced by \$0.3 million during the year.** Our debt now stands at \$44.7 million. Debt has been cut by \$27.9 million since 30 June 1997<sup>4</sup>. Capital expenditure of \$41.6 million has been funded and our self-insurance fund has grown to \$11.0 million over the same period. Greater Wellington's treasury management policy specifies that target debt should not exceed 220 percent of the water levy. It is currently 196 percent, \$5.4 million below our target limit. (QMS target 4.2.1, page 40)

**The wholesale water levy is set to rise, after 10 years without an increase.** We held the levy for 2006/07, at \$25.6 million (including GST). However, we have had to introduce a modest increase – three percent – to the levy for 2007/08, due to costs rising faster than productivity gains and increased interest rates on the funds we borrow. (QMS objective 4.2, page 40)

Greater Wellington published its ten-year plan 2006-16 in June 2006. This included provision for \$79 million to develop a major new water source from 2012/13. Our ten-year plan outlined that the water levy was set to be increased annually from 2007/08 to 2012/13, by between three and five percent (before inflation), in anticipation of this new source investment. The three percent increase in the 2007/08 levy is effectively an 'inflation-only' adjustment. This less-than-forecast increase is due to budgeted expenditure now being \$0.2 million less than provided for in the ten-year plan. Additional savings are expected from the closure of the laboratory business unit on 30 June 2007.

**Comparison with Watercare Services shows that our total supply costs remain competitive.** Watercare is the wholesale water supplier for greater Auckland. (See page 30, also QMS target 4.2.9, page 41)

## Water levy and inflation



In June 2007, the water levy for the year to 30 June 2008 was set at \$26.4 million, an increase of three percent over the 2006/07 levy. This is the first time in 10 years that the levy has been increased. The rise is in line with the estimated annual rate of inflation for the year to December 2007. (CPI figures are 12 months to 31 December. The Reserve Bank's September 2007 estimate for the year to December 2007 was 3.0 percent. Source Bancorp)

<sup>4</sup> Immediately prior to a major restructuring of Greater Wellington Regional Council's water supply operation

## Environmental performance

- Productive use of water take improved
- Chemical demand and solid waste output cut
- Power use efficiency improved
- Water take and discharges within consented limits
- Enhanced monitoring of the Waiwhetu aquifer
- Wainuiomata dam modified for wetland creation

We are committed to operating in an environmentally responsible manner, consistent with the Resource Management Act 1991 (RMA) and providing 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. We operate an environmental management system to instil focus and discipline around these activities. Our Environmental Policy is published on our web site (see outside back cover).

### Water take (see also PIs, page 26)

**We complied fully with all consent conditions for taking water.** (EMS target 1.3.1, page 42)

**We abstracted 60,555 million litres, 2.3 percent less than during 2005/06.** Lower demand for water was the main reason for the decrease. (See page 7 and EMS target 4.1.1, page 43)

**Abstraction efficiency was 95.1 percent.** This represents the proportion of our metered water take that we either treated for supply or used to increase or refresh the reserve of untreated water in the Stuart Macaskill Lakes. Conversely, unaccounted-for water take (UFWT) was 4.9 percent of the total take, compared with 5.0 percent during 2005/06.<sup>5</sup> Our UFWT equates to around eight million litres daily on average. Flow balance checks indicate most of this unaccounted-for volume occurs between Kaitoke Weir and our facilities at Te Marua. An amount of this UFWT volume is simply un-metered treatment process water use and evaporation from the Stuart Macaskill Lakes. However, we are checking the accuracy of our abstraction meters and also investigating losses from the tunnels between Kaitoke and Te Marua, to maximise productive use of our water take consent. This work will continue into 2007/08. (EMS target 4.1.1, page 43)

**Discharge from the Stuart Macaskill Lakes was slightly increased.** Discharge of untreated water from the lakes back to the Hutt River was 721 million litres or 2.6 percent of Hutt River abstraction, compared with 696 million litres (2.4 percent of abstraction) during 2005/06. Some turnover of stored water is desirable to maintain the quality of water in the lakes, so the volume used for this purpose reflects broadly the condition of

the raw water. This discharge is a permitted activity under the Regional Freshwater Plan. (EMS target 4.1.1, page 43)

**Sentinel wells for the Waiwhetu aquifer.** We arranged for three new wells to be drilled along Petone foreshore, to improve our confidence that any change in the health of the Waiwhetu aquifer's water can be identified quickly. The wells monitor for salinity and water levels in the aquifer, which provides about 40 percent of our annual supply. Although we were already monitoring the aquifer from a well near our Gear Island production bores, the new wells provide a much-improved level of security, by a combination of monitoring from a different part of the foreshore and monitoring deeper in the aquifer. Because salt water is heavier than fresh water, deep monitors are likely to pick up any saline intrusion earlier. (EMS target 4.1.4, page 43)

### Energy and chemical use

**Background.** Our electricity requirement for water treatment and distribution is broadly equivalent to that used by 2,500 average households and represents about eight percent of total operating costs.

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

Chemical use efficiency – kilograms per million litres treated (kg/ML) – depends on 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. Aquifer water has a higher direct power demand for abstraction and distribution pumping. However, treating river water also generates solid waste, which we must dispose of. From an environmental perspective, we don't have the means to quantify the relative merits of production from rivers and the Hutt aquifer. Given this uncertainty, our approach is to produce water at minimum marginal cost, subject to meeting our obligations under the Resource Management Act 1991 and taking a conservative approach to security of supply.

<sup>5</sup> Reported as 3.9% last year in error

**Electricity use by volume of water treated was 3.9 percent lower last year.** Overall, our electricity use for production and distribution of water last year – 19.2 million kilowatt-hours – was lower by 6.7 percent year-on-year, while the volume of water supplied was lower by 3.2 percent. We averaged 342 kilowatt hours per million litres treated, an improvement of 3.9 percent over 2005/06. The main reasons for our improved power use efficiency were reduced shares of total water supply from Waterloo (42.9 percent of output last year, compared with 45.3 percent during 2005/06) and from lake-sourced water at Te Marua (12.3 percent of output last year compared with 12.5 percent during 2005/06). We also realised minor operational improvements. (EMS target 4.2.1, page 44)

**Operational efficiency.** In 2006, we approached the Energy Efficiency and Conservation Authority for financial assistance for energy efficiency projects. We received a \$10,000 grant to conduct a preliminary energy audit of our facilities. The resulting audit recommended nine measures for further action, and we have since received a further grant of some \$28,000 to assist with implementation. These measures include investigation of on-line metering information for early identification of unusual trends in energy use; review of the control philosophy for non-critical variable speed pumps; and investigation of methods for accurate measurement of pump efficiency. We have since appointed an energy manager on contract, to champion our continuing efforts to improve power use efficiency and drive down costs. (EMS target 4.2.4, page 44)

**Micro-hydro investigations.** A recommendation from the energy audit has prompted us to investigate hydro generation at Wainuiomata and Te Marua, to avoid power costs and peak power tariffs. Preliminary analysis suggests we could meet up to 50 percent of the power requirement for the Te Marua Pumping Station by on-site generation, although we will not have finished cost/benefit analysis for the various options to achieve that until early in 2008. Meanwhile, analysis indicates that we could generate up to 80 percent of the power requirement for our Wainuiomata plant on site. We rejected this possibility as uneconomic some years ago, but are reviewing that work in light of increased power costs. (EMS target 4.2.4, page 44)

**Power factor correction.** We installed power-factor correction equipment at our Wainuiomata and Gear Island treatment plants, and at Ngauranga Pumping Station. This improves the transmission efficiency of the electricity network and reduces the reactive power charge component of our energy bills. (EMS target 4.2.5, page 44)

**Chemical use efficiency improved dramatically.** Chemical use per volume of water treated tends to

increase as our reliance on river sources increases. However, last year we improved our total chemical use efficiency – expressed in kilograms per million litres treated – by 23 percent year-on-year, while supplying 2.4 percent more water from rivers than we did during 2005/06 (57.0 percent compared with 54.6 percent). Lime, alum, CO<sub>2</sub> and caustic soda are our four main treatment chemicals by weight. We improved lime use efficiency at our three main treatment plants, by between 12 percent and 34 percent, for an overall improvement of 21 percent; we improved CO<sub>2</sub> use efficiency by nearly half at Te Marua and 30 percent at Wainuiomata, while we improved caustic soda use efficiency by a third. Similar improvements were made with the coagulant chemicals used at our surface water plants. At Te Marua, we improved alum use efficiency by 13 percent, while at Wainuiomata we improved PAC1 (polymer) use efficiency by 24 percent. Although raw water quality was less favourable during late spring and early summer of 2005/06 than it was in the current year, due to low river flows, a year-on-year improvement was seen in total chemical use efficiency for every month. This indicates that process improvement work was a key factor. Several of the projects that contributed to these results are described below. (EMS target 9.2.1, page 45)

**Coagulant dose control.** We have introduced more responsive process control at our Wainuiomata treatment plant, to improve chemical dosing efficiency and water quality. In August 2006, we installed a coagulant ‘feed forward’ control system at the plant, initially to run alongside the ‘feed back’ control loop. The new controller reacts instantaneously to raw water quality variations and, compared with the ‘feed back’ controller, tracks the variations more tightly. The ‘feed forward’ system can be set to prioritise maximum removal of organic material or optimise coagulant dosing economy to achieve acceptable filter outlet turbidity.

For the first nine months of operating the new system (in ‘economy’ mode), we have reduced coagulant costs by 15 percent. Trials using ‘enhanced organics removal’ mode increased coagulant use by 10 percent. However, the reduced organic load in the filtered water saw chlorine demand drop by almost 15 percent. We have achieved savings in the order of \$50,000 per year from installing the ‘feed forward’ coagulant dosing controller at Wainuiomata. We also expect to see a reducing trend in organically derived compounds, which cause taste and odour issues, in the distribution system over time.

The ‘feed forward’ coagulant control system (marketed as *Com::pass*) is a world first. It was developed by the consultants h<sub>2</sub>o<sub>2</sub>e Controls Ltd, based on extensive trials at our Wainuiomata treatment plant. We have secured the rights to use

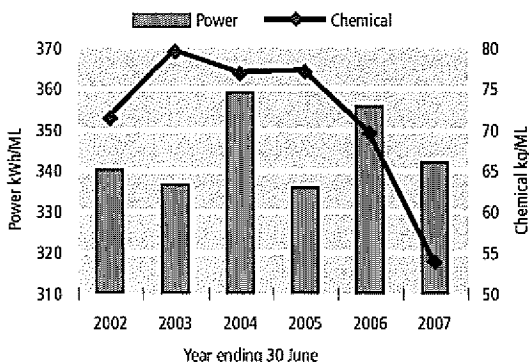
Compass at no cost, and plan to install it at our Te Marua plant in the coming year. (EMS target 9.2.1, page 45)

pH set-point control. We have also made progress with sharpening our control of chemical dosing to achieve treatment pH set points at the Te Marua and Wainuiomata treatment plants. Introducing 'feed-forward' analysis of raw water at the inlets of the plants has reduced the variance of actual pH from the set points, thus achieving more consistently optimal conditions for treatment and reducing unproductive use of CO<sub>2</sub>, lime and caustic soda. In a linked development, a model introduced last year at Te Marua and Wainuiomata also allows our operators to achieve targeted pH and alkalinity parameters while optimising the cost of chemicals. (EMS target 9.2.1, page 45)

**Lime re-use – Wainuiomata.** We have designed changes to the lime batching plant, to reduce the volume of lime slurry, which is taken off-site for disposal at present. We will introduce the changes in the coming year. In addition to the environmental benefit of less waste to landfill and sewer, we estimate annual savings in the order of \$15,000 to \$20,000. (EMS target 3.3.2, page 43)

**Lime use – Waterloo.** In our last annual report, we noted plans to modify the Waterloo treatment plant, so the two treatment streams could run in parallel, rather than in duty / standby mode. This will improve effectiveness of aeration and so reduce the need to dose lime for pH control. These changes are currently under way. An additional benefit of reduced lime use at Waterloo is a reduction in sand (an impurity in treatment lime) in the treated water supply from the plant. This has caused a nuisance in some parts of central Lower Hutt. We expect these process improvements coupled with Hutt City Council's imminent move to direct all our supply to central Lower Hutt through its Naenae reservoir will remove the incidence of sand in Lower Hutt tap water. (EMS target 9.2.1, page 45)

### Power and chemical demand



### Emissions and waste

**We achieved full compliance with all our discharge consents.** (EMS target 3.2.2, page 43)

**We sent less solid treatment waste (sludge) to landfill.** Our Te Marua and Wainuiomata treatment plants generated 1,560 tonnes of de-watered sludge (49 kilograms per million litres of river water treated), which was sent to the Silverstream landfill for disposal. This is a 4.8 percent reduction in total tonnage year-on-year, and a 6.1 percent reduction in terms of kg/ML of river water treated. (EMS targets 3.2.3, page 43)

Sludge represents about three-quarters of the total waste (by weight) from our water treatment plants. As for our chemical use, annual changes in sludge volumes reflect the mix of river and aquifer sources used to meet demand and the quality of the raw water for treatment.

**Filter to waste – Wainuiomata.** At 30 June, we were close to commissioning an improved filter-to-waste system at the Wainuiomata treatment plant. At present, all water from the plant's five filters passes to the treated water reservoir via a single pipe. High turbidity on any filter will cause the plant to shut down, with all water being processed at that time discharged to waste. When the plant is re-started, treated water is discharged to waste until all filters are operating properly. The changes will enable individual filters to be isolated, thus cutting the time Wainuiomata is off-line and cutting unproductive use of water and treatment chemicals. (QMS target 4.1.3, page 40)

**Wastewater recovery optimisation.** We have completed a study of the performance of the waste water recovery process at our two surface-water treatment plants. This identified a number of opportunities for improving the separation of the water and solid waste components. Minor changes to the control philosophy will be carried out in the coming year, to give improved cycle times for filter washes, generating less wash-water for disposal and increasing the capacity of the waste recovery plant. (EMS target 3.3.1, page 43)

**'Buy diesel' policy.** We have adopted a 'buy diesel' policy for our Operations vehicles, to reduce CO<sub>2</sub> emissions and enhance fuel supply security. We already store diesel at our treatment facilities, to power back-up generators in case of disruption to the electricity supply. Using this source to fill the vehicle fleet will allow us to turn over our stored diesel, save on the cost of buying fuel at retail prices and provide a safeguard against short-term problems with diesel supply to filling stations. (EMS objective 3.1, page 42)

## Land use and biodiversity

(Quality, customer service and business efficiency  
PI, page 25)

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. Possum control is carried out when needed.

Two operations were of particular note for the year to 30 June. An intensive goat control operation and the re-measurement of selected permanent plots in the Hutt Water Collection Area were completed. Indications from the plot re-measurements are that seedling growth is healthy and tree cover is being maintained. An aerial survey for pest insects and fungi was completed for both the Hutt and Wainuiomata-Orongorongo water collection areas. The foliage cover of the forest was reported to be in good health.

**Wainuiomata wetland.** We are close to completing work to modify the original Wainuiomata water supply dam (first used in 1884), as part of a Greater Wellington project to create a new wetland. The dam, in the Wainuiomata Recreation Area, is no longer in use. Recent changes to dam safety regulations required that we reduce the risks associated with possible failure of the dam due to earthquakes. We have cut down the spillway crest, to reduce the dam's impounding capacity while still providing for a shallow lake to be created. This can proceed once we have sealed the dam's tunnel and scours in September 2007, after the trout-spawning season. Supporting creation of a wetland contributes to Greater Wellington's goal of greater biodiversity within the region. (EMS target 5.1.6, page 45)

## Social performance

- All public demand for water was met
- Good progress with new source investigations
- 98 percent achievement of reservoir level targets
- Distribution efficiency 99.7 percent
- Water supply quality target achieved
- Full compliance with drinking-water standards
- A1 grade for Te Marua treatment plant

Our commitment to operating in a sustainable manner requires that we recognise our potential to meet social needs within the region. Supporting public health via a reliable, high quality water supply at a reasonable cost is our main contribution to meeting social needs, but we also contribute

through effective health and safety practices, risk mitigation and recovery planning, providing educational and recreational opportunities and supporting professional development of our staff.

**Planning for regional growth.** During development of the recently-completed Wellington Regional Strategy, we looked at how to provide for the forecast water needs of a resident population of 450,000. Our existing water infrastructure is designed to supply a population of 377,000 to the level of security that our customers expect (no more than two percent risk of some water shortage in any year).

We currently provide water for a population of 373,400.<sup>6</sup> Short-term system enhancements should provide for up to 390,000 residents, but at projected growth rates our supply area will need a major new source by about 2013. While the region has plenty of water available from existing sources most of the time, it faces an increasing risk of shortages in dry years as the population grows, due to lack of storage capacity. (QMS targets 1.1.1 and 1.1.2, page 38)

**Dam site investigations.** In the last year we have made substantial progress towards identifying the next long-term water supply scheme for the region. We carried out detailed investigations of three potential dam sites: Pakuratahi, Whakatikei and Wainuiomata. This work included ecological, botanic and heritage impact assessments, detailed geologic and engineering studies and further investigation of environmental and planning issues, and costs. We have also involved our customers and Greater Wellington councillors and senior officers in developing an assessment methodology to compare the three sites.

Building a new dam appears likely at some point in the future, however, lower-than-forecast population growth, shorter-term supply augmentation options such as the Upper Hutt aquifer (see below) and greater emphasis on water demand management (see page 8) could all contribute to a significant deferral of a dam beyond 2013. We have further investigation work to complete around several of these possibilities, and anticipate developing a water supply strategy based on the outcomes of all these supply-side and demand-side investigations in the coming year, for public consultation. (QMS targets 1.1.1 and 1.1.2, page 38)

**Upper Hutt aquifer investigation.** As part of new water source options work, we started investigating the potential of an aquifer beneath the upper Hutt Valley. The Upper Hutt aquifer is approximately nine kilometres long and three kilometres wide, extending from Birchville in the north to Taita Gorge in the south. We have drilled two exploratory bores and two monitoring bores in

<sup>6</sup> Estimated resident population, urban areas, at 30 June 2006 – Statistics NZ



a part of the valley identified as having the greatest potential for productive wells, near Heretaunga College. Initial flow-test results are encouraging. We scheduled five-day pump tests for July 2007, and will use the results to calibrate the computer model of the aquifer's sustainable supply potential. The exploratory bores are capable of becoming production wells, but more thorough testing and analysis will be undertaken in the coming year, including to identify the quality of the water, and so the extent of water treatment that would be needed. We will consider the Upper Hutt aquifer alongside other water augmentation options in 2008. (QMS targets 1.1.1 and 1.1.2, page 38)

**Short-term supply augmentation.** One option for short-term supply augmentation is increased water take from the Hutt River at Kaitoke Weir during periods of high demand. Our modelling indicates that if the consented residual flow rate could be reduced without harm to the river ecosystem, we could provide for another four or five years of population growth with relatively modest additional changes to our system.<sup>7</sup> This would defer the need to build major new treatment or distribution assets. Field investigations and stakeholder discussions about how best to evaluate low flow requirements in the Hutt River are well advanced. Investigation work has included fish passage and macro-invertebrate surveys, and an assessment of algae issues. The outcomes of these various work streams and discussions will be used to support our application for a change to the region's freshwater plan – to allow us to take more water – while providing greater assurance that ecological values will be safeguarded, particularly downstream of Birchville. (QMS target 1.1.2, page 38; EMS target 5.1.1, page 44)

**Demand management investigations.** Progress towards agreeing a co-ordinated water management plan for the greater Wellington urban area with our water supply customers has been modest during the last year. In 2004, greater Auckland's water authorities adopted a region-wide approach to management of their reticulated water. Essentially, this involved adopting a shared target for water saving and a common 'toolkit' of saving measures that each would use to develop individualised action plans. Since 2005, we have been working on a similar proposal – the Wellington Water Management Plan (WWMP).

In August 2006, we arranged a peer review of our draft WWMP technical report (the toolkit). The consultant identified a number of areas where we could improve the toolkit's reliability by further data gathering and analysis specific to Wellington's circumstances. We reached agreement with our customers about which of the peer review options

to incorporate and allocation of tasks in June 2007. At 30 June we were arranging research to identify current ownership and use of water-saving devices, and attitudes about water conservation. This work will continue in 2007/08. We also commissioned a detailed estimate of the costs by city associated with implementing universal water metering for our supply area, to strengthen the technical report. We were awaiting the report at our year-end. (EMS target 4.1.3, page 43)

**Our targets for maintaining reservoir levels and supply pressure were largely met.** We have twin targets for maintaining customer reservoirs near full,<sup>8</sup> which we aim to achieve 100 percent of the time. For the year in review, we achieved both targets 98 percent of the time. Where we did not achieve the targets, the Wainuiomata treatment plant being off-line was a significant factor, as were (to a lesser extent) distribution shutdowns and failures of remote telemetry units. 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 fully met our twin targets for maintaining supply pressure<sup>9</sup> at Thorndon, which feeds central Wellington's reticulation directly. Pressure and reservoir level targets are self-imposed. (QMS targets 1.2.1 and 1.3.1, pages 38-39)

**We treated 56,214 million litres: 3.0 percent less than in 2005/06.** Metered supply to customer reservoirs was 3.2 percent less year-on-year, at 56,048 million litres.

**Distribution efficiency was 99.7 percent.** The difference between the metered volumes of water treated and water supplied was 0.3 percent of the treated volume. This is less than the margin of error for our meters (+/- 1.0 percent) and indicates that our transmission losses continue to be negligible. (EMS target 4.1.1, page 43)

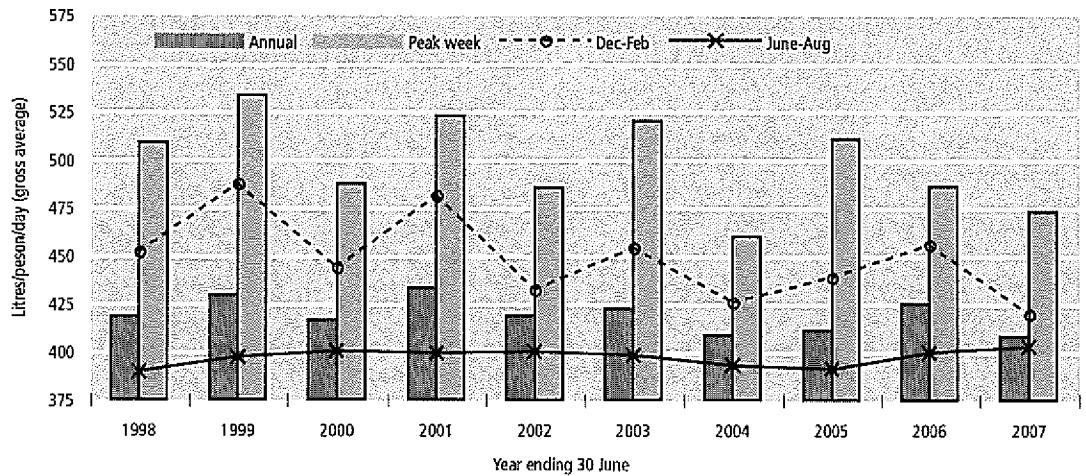
**Factors affecting supply.** The late arrival of settled weather was the main feature of the 2006/07 summer period. Supply volumes for December and January were relatively low, due to frequent rainfall, leaving us well placed to meet demand comfortably for the remainder of the summer. In marked contrast, February and March were relatively dry and sunny. While water use climbed steadily as a result, it did not threaten the more extreme levels we can see during prolonged periods of fine weather. Water use peaked at 191 million litres on Sunday 4 March; peak summer use typically exceeds 200 million litres per day. The relatively dry conditions continued through to the end of June.

<sup>7</sup> Minor works and the proposed reservoir near Wellington Hospital, which would be shared with Wellington City Council and Capital and Coast Health

<sup>8</sup> See QMS target 1.2.1, page 38

<sup>9</sup> See QMS target 1.3.1, page 39

## Water supply per resident



The average annual water supply volume per resident is decreasing gradually, as are the 'peak week' and summer (December – February) averages per resident. While 'base' winter (June – August) water supply per resident shows a slightly increasing trend, supply during winter 2006 / 07 was artificially high, due to a major leak. (See 'Factors affecting supply', page 8)

A hydrological analysis of the autumn 2007 (March – May) found rainfall in our Hutt catchment was in the lowest 10 percent of historical seasonal records, while the site of the original Wainuiomata reservoir experienced the second driest autumn in 118 years of record. Although our river water sources remained at relatively low seasonal flow rates at 30 June 2007, typical winter levels of water use meant we had more than enough to meet demand.

The marked increase in supply to Wellington that we noted in our last annual report also affected supply volume at the start of the 2006/07 year. The cause – a major leak in the city council's reticulation – was located early in September. Subsequently, supply to Wellington fell 11 percent in four weeks. We estimate that the leak inflated supply to Wellington by some 700 million litres this financial year, or 1.2 percent of our total system demand.

**Orongorongo water reinstated.** In May 2006, a large slip in the Orongorongo catchment broke and buried our pipeline to the Wainuiomata treatment plant, stopping the flow of raw water from that source. Confined working space and difficult access made this a very challenging repair. The repair necessitated ground stabilisation work and installing 24 metres of new pipeline before we resumed supply from the catchment, on 26 January 2007. The non-availability of water from the Orongorongo valley for the first half of the summer was not problematic. (QMS objective 1.1, page 38)

**Production capacity – Te Marua.** We commissioned a new 'split-stream' treatment regime at our Te Marua treatment plant during the first quarter of the year. This change allows treatment of source waters from the Hutt River and our storage lakes concurrently, even though the quality profiles of the two waters are different and have differing treatment requirements. Previously, we could

only use one of the two process streams at a time. Production of water directly from the Hutt River can be restricted by shortages of source water during periods of low rainfall, while production from stored water is limited to 80 million litres per day by the capacity of the plant's clarifiers. The production capacity from Te Marua – up to 140 million litres per day – hasn't been increased by the introduction of split-streaming, but this rate of output is now achievable more reliably. Because the two source waters can now be mixed, we are also able to maximise use of the 'direct filtration' treatment stream, which has lower operating costs. (QMS target 1.1.2, page 38; EMS target 3.1.3, page 43)

**New Grenada supply point.** We are working with Wellington City Council to provide water to a new subdivision in Grenada. Wellington is funding a new pumping station, reservoir and connecting pipe-work. We will take ownership of the pumping station and rising main once it is completed, so have worked alongside the city council and developer to ensure the facilities meet our requirements. At 30 June, the pumping station building was finished, but installation of the power supply and commissioning had been delayed, while the rising main was partially built. We expect these facilities to be operational in 2008.

**System security improvements.** 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.

**Point Howard Pumping Station.** In February, we commissioned a new pumping station to serve Eastbourne's reservoir. The old facility at Randwick was susceptible to flooding from the Waiwhetu Stream and liquefaction in the event of a large earthquake. The new facility, at the southern end of Seaview, is more secure from these hazards. (QMS target 4.1.3, page 40)

**Karori Pumping Station.** We had expected to commission our new Karori Pumping Station fully in the first quarter of 2006/07, but faults with some of the pumps has delayed that. The station serves both Kelburn and Karori. While the Karori pumps are working as expected, we rejected the Kelburn pumps because of unacceptable vibration when run at full capacity and their generally poor condition, revealed by an internal inspection. The supplier is manufacturing new pumps at their expense and we expect delivery of these in September 2007. We will continue to supply water to Kelburn from the old Karori Pumping Station until the issues with the new facility are resolved. This problem has delayed our decommissioning of the old Karori Pumping Station, in Waiapu Road. (QMS target 4.1.3, page 40)

**Strengthening the Stuart Macaskill Lakes' towers.** Strengthening against seismic activity was planned for this year, but was not needed. The Wellington Fault passes close to the lakes. The towers are over 20 years old and we were concerned they may not meet current earthquake design standards. However, a detailed investigation based on core samples found the concrete's strength was well above design strength, so no further strengthening is required. (QMS target 4.1.3, page 40)

**New storage capacity in Wellington.** There has been little progress in the last year with a proposal for Wellington City Council, Capital and Coast District Health Board and us to share the cost and use of a new reservoir, to be located in southern Wellington. Both we and the city council would benefit from more operating storage and system yield, while the hospital would have first call on part of the stored volume in an emergency. However, the three parties have not reached any firm agreement. Capital and Coast Health is requesting funding for its share of the project cost from Central Government. Having more water storage in Wellington is an important aspect of our short-term plans for maintaining water supply at agreed levels. We remain committed to this project and will do what we can to promote its realisation. (QMS target 1.1.2, page 38)

**Wireless communications upgraded.** We built a new radio repeater station between the Wainuiomata and Orongorongo catchments. The site has vehicle access, where our old facility could only be reached on foot. Wireless communication has an increasing role for remote monitoring and control of our water supply infrastructure. Improved access to this equipment serves to make

our system more robust. As part of this project, we installed a larger culvert on Sinclair Creek to enable better wet-weather access to the Wainuiomata and Orongorongo water catchments and the repeater station. Removal of the old culvert has improved fish passage upstream. (QMS target 4.1.3, page 40; EMS target 2.2.1, page 42)

**Kaitoke main – Silverstream Bridge.** We anticipated replacing our Kaitoke-Wellington water main on Silverstream Bridge this year, on the downstream side in a position above the level of the bridge soffit. This was primarily to fit in with strengthening work that Upper Hutt City Council had planned for the bridge, but we also saw an opportunity to mitigate concerns that the pipe in its present position below the deck exacerbated the effect of flooding. However, the need to move the pipe to accommodate Upper Hutt City Council strengthening work was eliminated by a change in the design of this work. A review of the impact the pipe would have on surrounding areas during flooding showed this to be negligible, and replacement of the pipe has therefore been deferred. Revised timing for this project is still to be decided and will depend on a detailed condition assessment of the pipe, which is under way. (QMS target 4.1.3, page 40)

**Reservoir standpipes.** We have started to install inlet standpipes on customer reservoirs, where our inlet non-return valves are some distance from the reservoirs. Standpipes will prevent most of the reservoirs' contents being lost if there are failures of the delivery pipes between the non-return valves and the reservoirs. We installed a standpipe in the Porirua low-level reservoir this year, while plans are proceeding to install a bypass to the Pukerua Bay Reservoir in September 2007, so we can fit a standpipe inside it without disrupting supply. We plan to fit standpipes to some 12 reservoirs during the next four years. (QMS target 4.1.3, page 40)

**Emergency connections.** We installed an emergency connection directly to Upper Hutt City Council's reticulation system in Fergusson Drive in the first months of the year. This provides a second option for supplying a large zone at the southern end of Upper Hutt if our rising main to Trentham Reservoir failed or if the reservoir is taken out of service for some reason. (QMS target 4.1.3, page 40)

## Water quality

**Drinking water standards compliance.** The Regional Public Health unit of the Hutt Valley District Health Board (HVDHB) has advised that we achieved full compliance with the drinking water standards for the year to 30 June 2007. This covers chemical and microbiological compliance for water leaving our treatment plants and within the wholesale distribution system. At present HVDHB does not assess aesthetic compliance on an annual

basis. However, Te Marua was assessed for aesthetic compliance when being re-graded to 'A1' in the last year and, based on our records, we are confident that our other treatment plants and distribution system also meet the compliance standards. (QMS targets 2.1.1 – 2.1.3, 2.2.1 – 2.2.3, page 39)

**Mandatory compliance with quality standards.** In our last annual report, we noted a Government initiative to amend the Health Act 1956 with the Health (Drinking Water) Amendment Bill. If passed, this would require water suppliers to take all practical steps to comply with the drinking water standards, and to implement public health risk management plans.

In August, we made a submission to the Select Committee considering the Health (Drinking Water) Amendment Bill. We have a long record of compliance with the drinking water standards, so are confident that the bill's passage would have little effect on our capital expenditure. However, we did voice concern about the degree of duplication involved in preparing risk management plans in cases such as ours, where the water supplier already operates in accordance with an appropriate quality management standard, such as ISO 9001. At 30 June, the Health (Drinking Water) Amendment Bill remained under Parliamentary Select Committee consideration.

**Environmental standard for water sources.** Twelve months ago, we reported the Ministry of Environment's proposal to establish a national environmental standard for drinking water sources, to protect them from contamination. Since then, the proposal has gained Government approval. We understand the new standard will take effect in the second half of 2007. Since Greater Wellington owns its surface water catchments and already protects them for water supply, we anticipate no impact from this change.

**Treatment plant grading.** In the course of the last year, the Regional Public Health unit of HVDHB re-graded our Te Marua and Waterloo treatment plants, while at 30 June we were finalising a grading submission for our Gear Island plant. We are pleased to report Te Marua and Wainuiomata treatment plants are now graded 'A1', the highest available, while our Waterloo plant received a 'B' grade, the highest possible given Hutt City Council's preference that we provide them with an unchlorinated supply. We are confident of receiving an 'A1' grade for Gear Island in the coming year. (QMS targets 5.2.1 – 5.4.4, page 41)

**Protozoa risk management – Wainuiomata.** We are preparing to install an effluent sewer line from the Wainuiomata treatment plant's wastewater centrifuge, to pipe the effluent to Hutt City Council's sewerage system. The new sewer will reduce the risk of protozoa being returned to the

inlet of the plant and concentrated in recycled process water. (EMS target 3.2.4, page 43)

**Protozoa risk management – Stuart Macaskill Lakes.** We have decided not to carry out a cull of ducks from our storage lakes at Te Marua, after investigations failed to establish that their presence caused a significant risk to water quality in the lakes. We will continue to monitor the quality of the lake water. (QMS target 2.1.1, page 39)

**Treatment for taste and odour.** Our investigation of taste complaints in January 2006 resulted in a decision to design and build a portable system for dosing powdered activated-carbon into the inlet mixing chamber of our surface-water treatment plants. At 30 June, we had still to complete programming and commissioning. The carbon dosing equipment should be operational by the end of 2007, and trial work is planned to commence in February 2008. (QMS targets 2.1.3 and 2.2.3, page 39)

**QMS compliance.** An independent accreditation audit in October 2006 resulted in continued certification to the ISO 9001 quality management standard. A report of performance against quality system targets appears from page 38.

**Grading of our distribution system.** In the course of the last year, we submitted information to the Regional Public Health unit of HVDHB, to enable it to grade the three distinct zones in our wholesale distribution system. There has been no provision to grade wholesale distribution systems until recently. As a forerunner to this, we installed equipment within our network, to enable continuous monitoring of the microbiological quality of the water. Our target is to achieve 'A1' grading for each zone, the highest available. This is significant for our customers, as a 'downstream' reticulation zone cannot have a higher grading than the wholesale zone that supplies it. We anticipate receiving these grading assessments in the first quarter of 2007/08 (QMS targets 6.1.1 and 6.2.1, page 41)

**Closure of our laboratory.** Water quality monitoring requirements introduced with the Drinking-water Standards for New Zealand 2005 allowed for more widespread use of continuous online monitoring. We embraced this development and, consequently, have had a much-reduced sample collection and analysis workload for our in-house laboratory. We determined that it was not viable to maintain a high quality laboratory service under these circumstances and so sought tenders for our reduced testing workload. On 30 June 2007, our laboratory business unit ceased operating and four of the five remaining staff transferred to the successful tendering laboratory. Our laboratory maintained accreditation to Conformance Standard ISO 17025:2005 until its closure. (Quality, customer service and business efficiency PI, page 25)

## Customers and community

**Customer service agreement.** We are closer to finalising a formal service level agreement with our customers, but some important steps still need to occur. Wellington and Hutt city councils' water management company – Capacity – has been acting on behalf of all our customers to negotiate the content of the agreement. However, as the agreement draft has been progressed to a more complete document, all four customers have become involved directly, which resulted in some re-drafting of content. At 30 June, we were working with Capacity to iron out the remaining issues. This work will continue in the coming year.

**Assistance to Wairarapa water suppliers.** In February, South Wairarapa District Council (SWDC) asked us to review its water operations in Greytown, to identify opportunities to reduce its operating costs. We did this, and put forward broad recommendations and an offer of further assistance. However, SWDC has not taken our offer further to date. Meanwhile, in August, we terminated an agreement with Masterton District Council that had seen us managing its Kaituna treatment plant since March 2005. During the term of the contract, we had identified various measures to strengthen its risk and quality management methods. We were keen to develop those proposals, but were unable to reach agreement with Masterton about a way forward that suited both organisations.

**Water history publication.** We are set to publish a new account of Wellington's water supply history. In 1986, Wellington Regional Council published the *History of Water Supply in the Wellington Region 1872 – 1985*. During the last 22 years, substantial renewal and expansion of the water supply network has taken place. We contracted a local historian to extend and revise the original water history text on our behalf, and expect to publish this updated work shortly.

**Water conservation promotion.** Because of the late start to summer, we shortened our annual promotion to gardeners of careful water use, after consulting our customers. The eight-week schedule we had planned was cut to three weeks from mid February. There was evidence of increased watering by that time, but it was pleasing that this was not to excessive levels.

**Recreational hunting.** The annual ballot for hunting blocks in our Wainuiomata and Orongorongo water catchments was fully subscribed. We made 10 hunting blocks available for four periods of five days' duration. The hunters took nine animals in total; this number has steadily fallen over the seven years we have offered the ballot hunt, reflecting the effectiveness of our ongoing pest management work. We offer the hunting ballot primarily as a

recreational opportunity on land usually closed to the public. (QMS objective 5.2, page 41)

**Water supply education.** We hosted 800 visitors to our water treatment plants last year, as part of our effort to increase understanding about our region's water supply. Tours of our facilities are free to education and non-profit groups. We have identified an opportunity to increase visit numbers from the primary school sector, but deferred completing the resource last year, due to other commitments. We will revisit this opportunity in the coming year.

## Health, safety and training

(Health and safety PI, page 29)

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.

Trends in accident and injury rates over time provide one measure of effectiveness of safety management systems.

	Year to 30 June				
	2007	2006	2005	2004	2003
Accident and injury rates					
Staff numbers (year end)	58	55	56	58	56
Incidents (per 100 employees)	23.0	49.1	22.0	40.7	36.3
Frequency (incidents per 10,000 hours worked)	1.3	2.7	1.3	2.2	2.1
Severity (days lost per 10,000 hours worked)	0.3	2.5	3.8	1.2	5.2

Thirteen incidents were recorded last year, with only three days lost to injury. The severity rate in particular is a very pleasing result.

**Cadetship scheme.** In November, we employed two water treatment trainees as part of a youth training partnership with Upper Hutt City Council and the Ministries of Youth Development and Social Development. The newly launched cadet scheme targets Upper Hutt young people who are not in school, employment or training. The programme aims to provide work experience, mentoring and training, encouraging personal development through participation in the work force. We are pleased to be able to support this youth development initiative.

**Training.** The number of hours dedicated to staff training courses was 2,332, or 40 hours per full-time employee;<sup>10</sup> this figure does not reflect on-the-job training for the cadets. The equivalent figures for the last four years were 48 hours (2005/06), 43 hours (2004/05), 44 hours (2003/04) and 32 hours (2002/03). Direct expenditure on training and professional development for 2006/07 was 2.2 percent of total personnel costs, compared with a budget allowance of 2.9 percent. (EMS targets 7.1.1 and 7.2.1, page 45)

<sup>10</sup> Employee numbers at 30 June each year

# Detailed financial and water supply performance

## Financial overview

The financial results for the reporting period ended 30 June 2007 are indicative of another successful year's operating performance for Greater Wellington Water. While an operating deficit of \$0.4 million was posted for the financial year, this result is still \$1.6 million better than the budgeted deficit of \$2.0 million.

These results incorporate the June 2006 decision to maintain the wholesale water levy at \$22.8 million for the 2006/07 financial year. This was the tenth year in succession that the water levy has either remained unchanged or been reduced. Our debt level at 30 June 2007 was \$44.7 million, a decrease of \$0.3 million over the course of the financial year, due primarily to lower than average capital expenditure and various operational cost savings. We have reduced debt by \$27.9 million since June 1997, as cash surpluses generated during the course of operational activities have been applied to accelerating the ongoing rate of debt principle repayment. In addition, the asset contingency investment balance has grown to \$11.0 million over the corresponding period.

Our total operating expenditure increased by 2.4 percent in 2006/07, from \$24.2 million to \$24.8 million. This compares with a 3.4 percent increase in 2005/06. The increase is due primarily to total contractor and consultant costs rising by 63.8 percent, as investigation work into potential new water sources was completed. However, annual power costs were similar to 2005/06 and we saw chemical costs fall by 15.0 percent, benefiting from a combination of lower volume dosage and the impact of a strong New Zealand dollar on world commodity spot prices. Net financial costs also continued to fall, being 4.0 percent lower than for the corresponding reporting period last year, as a result of enhanced returns from our asset contingency investment and lower-than-projected total debt.

We maintained the reliability record of the supply system, comfortably meeting a slightly lower level of annual demand, which was influenced by relatively frequent rainfall during spring and early summer and Wellington City Council locating and repairing a leak that had inflated supply to the city during 2005/06. These factors translated into a 3.2 percent decrease in water supplied during 2006/07, (56,048 million litres), compared to 2005/06, (57,913 million litres).

Finalised expenditure on the capital works programme was \$3.9 million, which was \$2.3 million lower than budgeted. There were a number of contributory factors, but the lower-than-forecast expenditure was primarily due to the deferral of two projects: the Hutt River intake at Te Marua and the Silverstream Bridge pipeline replacement, as well as not needing to strengthen the Stuart Macaskill Lakes towers, and less-than-anticipated expenditure on equipment replacements at the treatment plant. Major project achievements during the year included commissioning of the new Point Howard Pumping Station, modifications and refurbishment of the lower Wainuiomata dam spillway, and replacement of equipment at Thorndon Pumping Station. Otherwise, expenditure has been incurred on a wide range of less financially significant projects, which nevertheless help to maintain or enhance the security and quality of water supply to the regional population, in an environmentally sustainable manner.

The information contained in the following eight pages detail the financial results for Greater Wellington Water. Audit New Zealand has reviewed the financial information of Greater Wellington Water, an operating unit of the Greater Wellington Regional Council. Audit New Zealand can provide assurance that the financial information has been correctly extracted from the financial systems of the Greater Wellington Regional Council, and that it provides a true and fair representation of the activities of Greater Wellington Water for the year ended 30 June 2007.

The table below summarises financial performance since 2003.

### Financial summary

	June 2003	June 2004	June 2005	June 2006	June 2007
	Actual \$000	Actual \$000	Actual \$000	Actual \$000	Actual \$000
Operating revenue	24,003	23,844	24,274	24,130	24,395
Depreciation	5,347	5,352	6,563	6,331	6,175
Financial costs	3,794	3,674	3,295	3,176	3,268
All other operating expenditure	12,861	13,785	13,543	14,682	15,315
<b>Operating surplus</b>	<b>2,001</b>	<b>1,033</b>	<b>873</b>	<b>(59)</b>	<b>(363)</b>



## Financial statements

### Income statement

For the year ended 30 June

Notes	2007	2007	2006
	Actual \$000	Budget \$000	Actual \$000
<b>Operating revenue</b>			
Water supply levies	22,776	22,776	22,776
Internal revenue	268	301	345
Other revenue (interest and external)	1,351	1,121	1,009
<b>Total operating revenue</b>	<b>24,395</b>	<b>24,198</b>	<b>24,130</b>
<b>Operating expenditure</b>			
Personnel costs	4,291	4,329	3,901
Contractor and consultant costs	2,457	2,338	1,500
Internal consultant costs	2 633	514	492
Interest costs	3,220	3,401	3,176
Depreciation	6,175	6,832	6,331
Loss / (gain) on sale	141	(61)	420
Movement in doubtful debt provision	21	-	(1)
GWRC overhead charge	804	804	914
Operating expenditure	3 7,016	8,060	7,456
<b>Total operating expenditure</b>	<b>24,758</b>	<b>26,217</b>	<b>24,189</b>
<b>Net surplus for the year</b>	<b>(363)</b>	<b>(2,019)</b>	<b>(59)</b>

### Statement of movements in equity

For the year ended 30 June

	2007	2007	2006
	Actual \$000	Budget \$000	Actual \$000
Equity as at 1 July	257,634	258,120	257,715
Net surplus for the year	(363)	(2,019)	(59)
<b>Total recognised revenues and expenses for the year</b>	<b>(363)</b>	<b>(2,019)</b>	<b>(59)</b>
Revaluation reserve movement	(130,092)	(138,427)	(494)
Other reserve and equity movements	130,079	137,248	472
<b>Equity as at 30 June</b>	<b>257,258</b>	<b>254,922</b>	<b>257,634</b>

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

## Balance sheet

As at 30 June

		2007	2007	2006
	Notes	Actual \$000	Budget \$000	Actual \$000
<b>Equity</b>				
Accumulated funds, including appropriations	4	201,040	206,545	71,324
Asset revaluation reserve		56,218	48,377	186,310
<b>Total equity</b>		<b>257,258</b>	<b>254,922</b>	<b>257,634</b>
Represented by:				
<b>Non-current liabilities</b>				
Public debt	6	44,696	48,853	44,983
<b>Total non-current liabilities</b>		<b>44,696</b>	<b>48,853</b>	<b>44,983</b>
<b>Current liabilities</b>				
Accounts payable		1,448	3,496	1,527
Employee entitlements		590	508	508
GWRC treasury payables	5	1,936	-	1,654
<b>Total current liabilities</b>		<b>3,974</b>	<b>4,004</b>	<b>3,689</b>
<b>Total liabilities</b>		<b>48,670</b>	<b>52,857</b>	<b>48,672</b>
<b>Non-current assets</b>				
Property, plant and equipment	7	290,978	292,861	293,145
Investments	8	10,976	10,914	9,472
<b>Total non-current assets</b>		<b>301,954</b>	<b>303,775</b>	<b>302,617</b>
<b>Current assets</b>				
Accounts receivable		2,279	2,466	2,190
Stocks	9	1,591	1,494	1,453
Accrued revenue		104	44	46
<b>Total current assets</b>		<b>3,974</b>	<b>4,004</b>	<b>3,689</b>
<b>Total assets</b>		<b>305,928</b>	<b>307,779</b>	<b>306,306</b>
<b>Total net assets</b>		<b>257,258</b>	<b>254,922</b>	<b>257,634</b>

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

## Funding statement

For the year ended 30 June

		2007	2007	2006
Notes		Actual \$000	Budget \$000	Actual \$000
<b>Funds from operating activities</b>				
Funds were provided from:				
	Levies received	22,776	22,776	22,776
	Interest received	765	722	618
	Other revenue	854	700	736
		24,395	24,198	24,130
Funds were applied to:				
	Payments to suppliers and employees	15,222	16,045	14,262
	Interest paid on public debt	3,220	3,401	3,176
		18,442	19,446	17,438
	<b>Net funds from operating activities</b>	<b>5,953</b>	<b>4,752</b>	<b>6,692</b>
		10		
<b>Funds from investing activities</b>				
Funds were provided from:				
	Proceeds from sale of non-current assets	95	135	62
		95	135	62
Funds were applied to:				
	Purchase of non-current assets	388	529	314
	Capital projects	3,868	6,230	6,413
		4,256	6,759	6,727
	<b>Net funds from investing activities</b>	<b>(4,161)</b>	<b>(6,624)</b>	<b>(6,665)</b>
<b>Funds from financing activities</b>				
Funds were provided from:				
	Appropriations / new loans	3,975	6,230	6,413
	Transfer from reserves	-	-	-
		3,975	6,230	6,413
Funds were applied to:				
	Repayment of public debt	4,262	2,886	5,077
	Transfer to reserves	-	-	-
	Investment additions	1,505	1,472	1,363
		5,767	4,358	6,440
	<b>Net funds from financing activities</b>	<b>(1,792)</b>	<b>1,872</b>	<b>(27)</b>
	Net increase in funds held	-	-	-
	Add opening funds brought forward	-	-	-
	<b>Ending funds carried forward</b>	<b>-</b>	<b>-</b>	<b>-</b>

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

Greater Wellington (GW) Water operates within the Water Supply, Parks and Forests Division of Greater Wellington Regional Council. Its activities include collection, treatment and distribution of potable water to four territorial authority customers.

These financial statements exclude balances in respect of the forest investments managed by the Water Supply, Parks and Forests Division.

### B Measurement basis

The financial statements have been prepared on a historical cost basis, modified by the revaluation of certain non-current assets.

### C Particular accounting policies

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 Greater Wellington Regional 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 for the preparation of these financial accounts.

#### Water supply levies

Levies represent charges to the territorial authorities for the collection, treatment and distribution of potable water. Levies are recognised in the period to which they relate.

#### Property, plant and equipment

Non-current assets consist of:

Operational assets – these include land, buildings, improvements, plant and equipment, computer software and motor vehicles.

Infrastructure assets – these relate to the region's water supply system. Each asset type includes all items that are required for the system to function.

#### Valuation

All non-current assets are valued at historical cost, except for the following:

- a. Infrastructure assets have been valued at optimised depreciated replacement cost at 30 June 2004
- b. Operational land has been valued at 2004 market rates.

#### Work in progress

Work in progress is not depreciated. The total cost of the project is transferred to the relevant asset on completion and then depreciated.

### **Stocks**

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

### **Depreciation**

Depreciation is provided on a straight-line basis on all fixed assets other than land, at rates which will write off the cost (or valuation) of the fixed assets to their estimated residual value over their useful lives. The useful lives have been estimated as follows:

Buildings	10 to 100 years
Pipelines, reservoirs, dams	50 to 150 years
Plant, vehicles, equipment	3 to 20 years

### **Accounts receivable**

Accounts receivable are stated at estimated realisable value after providing against debts where collection is doubtful.

### **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 within 12 months of balance date, the provision is the estimated amount expected to be paid. 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:

- a. For the purpose of the financial statements, cash is deemed to be the movement in treasury payables and receivables, being the cash equivalent for GW Water
- b. Investing activities are those activities relating to the acquisition, holding and disposal of non-current assets
- c. Financing activities are those activities that result in changes in the size and composition of the capital structure of GW Water
- d. Operating activities include all transactions and other events that are not investing or finance activities.

### **Changes in accounting policies**

There have been no material changes to the accounting policies, and all policies have been applied on a consistent basis, other than those required under NZ IFRS.

## 2. Internal consultant costs and revenue

Charges between departments of GW Water have been eliminated. These charges were \$3.0 million in both 2006/2007 and 2005/2006. The reported internal consultant costs and revenue constitute charges to and from other GWRC divisions and the Parks and Forests functions within the Water Supply, Parks and Forests Division.

## 3. Operating expenditure

Operating expenditure is made up of payments for transportation costs plus materials and supplies, such as chemicals and power.

## 4. Accumulated surplus, including appropriations

	2007	2006
	Actual	Actual
	\$000	\$000
Balance at 1 July	71,324	71,383
Surplus for the year	(363)	(59)
Transfer from asset revaluation reserve	130,079	-
<b>Balance at 30 June</b>	<b>201,040</b>	<b>71,324</b>

## 5. Balance sheet – presentation of working capital

GW Water does not have its own bank account. All transactions are processed through the Greater Wellington Regional Council accounts. The net balance of these transactions is represented by the GWRC treasury payables figure within the accounts as at 30 June.

## 6. Long-term public debt

	2007	2006
	Actual	Actual
	\$000	\$000
Balance at 1 July	44,983	43,647
New loans	3,975	6,413
Operating cash surplus applied to debt repayment	(4,262)	(5,077)
<b>Balance at 30 June</b>	<b>44,696</b>	<b>44,983</b>

All public debt obligations are fully secured against the rateable property of Greater Wellington Regional Council. The interest rate paid for the year ended 30 June 2007 was 7.13% (7.53% to 30 June 2006). All operating cash surpluses are applied to the accelerated repayment of debt.

## 7. Property, plant and equipment

2007	Deemed cost \$000	Revaluation reserve \$000	Accumulated depreciation \$000	Net book value \$000
Land	2,921	4,954	-	7,875
Water supply infrastructure	247,517	51,264	18,140	280,641
Computer software	785	-	630	155
Office equipment	275	-	134	141
Plant and equipment	503	-	296	207
Motor vehicles	1,313	-	698	615
Work in progress	1,344	-	-	1,344
	254,658	56,218	19,898	290,978

2006	Deemed cost \$000	Revaluation reserve \$000	Accumulated depreciation \$000	Net book value \$000
Land	2,896	4,954	-	7,850
Water supply infrastructure	113,960	181,356	12,332	282,984
Office equipment	264	-	108	156
Plant and equipment	1,734	-	1,169	565
Motor vehicles	1,109	-	690	419
Work in progress	1,171	-	-	1,171
	121,134	186,310	14,299	293,145

The last valuation of land, buildings and water supply infrastructure assets was performed in 2004, by the appointed registered valuers, Knight Frank Ltd. These valuations were stated at either the 2004 market values (land), or the depreciated replacement cost as at 30 June 2004 (infrastructure). The next asset revaluation will be carried out by June 2009 at the latest, and thereafter will occur on a regular cyclical basis. Those assets that contribute directly to the supply and distribution of water are classified as water supply infrastructure and valued at component level. Detailed valuation information is held in GW Water's asset information system.

Property, plant and equipment are now accounted for in accordance with NZ IAS 16. For the water supply infrastructure component, a previous revalued amount has been deemed their cost. To reflect the correct revaluation reserve balance, a transfer of \$130 million was made to retained earnings. With the exception of separately identifying intangible computer software assets, there was no other change to the presentation or total value of property, plant and equipment.

## 8. Investments

	2007 Actual \$000	2006 Actual \$000
Asset rehabilitation fund	10,976	9,472
	10,976	9,472

As at 30 June 2007, this investment attracted an interest rate of 8.34% (7.21% as at 30 June 2006).

## 9. Stocks

	2007	2006
	Actual \$000	Actual \$000
Chemicals	124	119
Capital spares	1,467	1,334
	1,591	1,453

## 10. Reconciliation of funds from operations to operating surplus

	2007	2006
	Actual \$000	Actual \$000
Reported surplus	(363)	(59)
Add / (less) non-cash items:		
Depreciation	6,175	6,331
Loss / (gain) on sale	141	420
Total non-cash items	6,316	6,751
Net cash flow from operating activities	5,953	6,692

## 11. Financial instruments

### Currency risk

GW Water is not exposed to 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 monitored on a regular basis. Bank balances 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 water supply levy. Regional water supply levies are collected from the region's four city councils.

### Interest rate risk

Greater Wellington Regional Council's 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 a single contingent liability of \$263,988 as at 30 June 2007 (\$211,458 at 30 June 2006).

## 14. Commitments

GW Water leases Level 4 of the Regional Council Centre from Greater Wellington Regional Council on an arms-length basis. As at 30 June 2007, GW Water had a single short-term capital works programme-related contractual commitment, valued at \$89,750, in addition to the office lease (\$104,703 at 30 June 2006).

## Performance indicators

The performance indicators that applied during the 2006/07 operating year are shown in standard text. Results for 2006/07 in relation to the performance indicators are shown in italic text.

### 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

GW Water collects, treats and delivers water to the cities of Lower Hutt, Porirua, Upper Hutt and Wellington. Vegetation and pest management activities are undertaken within the water supply catchments.

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 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.*

*GW Water holds certification to ISO 9001:2000, Quality Management Systems – Requirement, for its wholesale water supply operations. Quality management procedures within the system ensure the high quality of all aspects of the water supply operation.*

### Quality, customer service and business efficiency (collect, treat and deliver water): short-term

By 30 June 2007

Water will be supplied to the four cities within a total operating spend (excluding depreciation) of \$22,432,000.

*We supplied 56,048 million litres of water to the four cities. Expenditure of \$21,584,000 was incurred to collect, treat and distribute this water.*

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.

*We received advice from the drinking water assessor employed by Hutt Valley District Health Board that, for the year to 30 June 2007, we achieved full compliance with the Standards for water leaving our treatment plants and in the wholesale distribution system. This has still to be confirmed formally.*

Water testing will be carried out by an International Accreditation New Zealand (IANZ)-registered laboratory at sampling points defined by the Quality Assurance section of GW Water, not less than five days out of every seven. Expenditure will not exceed the budget of \$716,000.

*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 wholesale distribution system has been sampled and tested by an IANZ-accredited laboratory, at representative locations, in accordance with a testing regime that we agreed with the Regional Public Health unit of the Hutt Valley District Health Board. The cost of routine laboratory testing was on budget, at \$716,000.*

The grading for each of the water treatment plants at 1 July 2006 will be maintained, except for the plants that will be graded during the year.

*The Te Marua Water Treatment Plant received an 'A1' grading, while the Waterloo Treatment Plant received a 'B' grading (the highest available for an unchlorinated supply) during the year. The Gear Island Water Treatment Plant (a standby facility, currently ungraded) will be graded in the coming year. The grading for the Wainuiomata Water Treatment Plant remained 'A1'.*

Vegetation management measures will be carried out in Greater Wellington Regional Council's water supply catchments, in accordance with its Forestry Management Plan and within a budget of \$170,000, so that the treatment plants receive good quality water.

*Vegetation management and pest control measures were carried out in the catchments as required. The final full-year cost of this work was \$156,000, with untreated water showing no abnormal levels of Cryptosporidium, Giardia or E.coli.*

A ranger service for the Wainuiomata / Orongorongo Water Collection Area will be obtained from the Parks Department of the Water Supply, Parks and Forests Division, at a cost not exceeding \$101,000.

*Work by Park Operations was completed as required. Annual expenditure of \$100,365 was incurred.*

Customers will be provided with a business report by 30 November 2006, which will include the following information:

- Financial results for the preceding financial year ended 30 June
- Actual 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 ongoing service level agreements.

*A business report was published by 30 November 2006. Information as per the bullet points above was included.*

## 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.

By 30 June 2016

Water supply will be adequate to meet present and future demands, in accordance with current supply policy (currently a 1-in-50-year return-period drought standard).

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

*The Wellington Water Management Plan is being developed in parallel with investigations of new sources. Consultation with our four city council customers about the plan is underway. We expect to bring the results of these two strands of investigation together in 2008, to consider the findings and agree on a process for selecting a preferred future water supply strategy.*

## Plan to meet current and future demands for water: short-term

By 30 June 2007

A report will be prepared on options for a new, significant, water source within a budget of \$1,084,000.

*Investigations of options for a new water source were completed at a cost of \$1,155,000. This work covered technical investigations, planning and consultation, environmental issues and distribution system upgrades related to new water source options. A summary is being prepared for input to the water supply strategy.*

The Wellington Water Management Plan will be implemented in association with our four city council customers.

*The draft Wellington Water Management Plan (Technical Report) was discussed with the city council customers and it was agreed that market research would be undertaken before the report is finalised. This will be carried out in the first half of 2007/08.*

A water conservation programme will be implemented within a budget of \$72,000.

*The summer water conservation programme was implemented at a cost of \$50,000. The reduced expenditure resulted from a shorter than planned programme, because of poor early summer weather.*

## Plan for emergencies: long-term

Levels of service

1. 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 1-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.

*Projections using a computer-based sustainable yield model show that Greater Wellington Regional Council's water supply infrastructure has a greater-than-1-in-50-year shortfall probability until about 2008, at current growth rates. A 1-in-50-year shortfall probability was adopted after consultation with our customers. This is higher than that of Auckland's 1-in-200-year standard, though the Auckland system is more reliant on storage and hence more susceptible to long-term droughts.*

*We manage 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.*

*GW Water has an 'n-1' policy for security of water supply. This means that either Te Marua or Waterloo water treatment plants could be out of commission and the daily base water requirement of 145 million litres still met.*

## Plan for emergencies: short-term

By 30 June 2007

The Stuart Macaskill Lake towers at Te Marua will be strengthened to meet the latest seismic design standards at a cost not exceeding \$100,000.

*A consultants' report, following analysis of concrete core samples, indicated that the strength of the structures was higher than design and strengthening was not required. Total project costs of \$40,605 were incurred at year-end.*

At least one customer emergency connection will be installed, at a cost not exceeding \$50,000.

*An emergency connection to the Upper Hutt water reticulation system was completed, at a cost of \$48,563 in the financial year.*

Investigations for an emergency pumping station at Whitehead Road, Wellington, will be started, at a cost not exceeding \$20,000.

*Investigations for an emergency pumping station were started and site and capacity requirements confirmed, at a cost of \$9,807 in the financial year.*

## 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 wholesale water supply activities.*

## Environmental management: short-term

By 30 June 2007

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

*Greater Wellington's Environment Management Division certified full compliance for all consents held. Annual consent charges of \$55,092 for ongoing activities have been finalised for the 2006/07 financial year. Total fees including one-off consents were \$56,177.*

Resource consent compliance will be demonstrated to an auditable standard, and a report on compliance for 2005/06 will be prepared by 30 November 2006.

*A report was published by 30 November 2006.*

Aquifer monitoring wells will be installed at the Petone foreshore at a cost not exceeding \$100,000.

*The contract is now estimated to cost \$250,000, and our request for additional funding for this vital project was approved. Total expenditure of \$176,920 has been incurred to the end of the 2006/07 financial year.*

### 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 and hazard registers have been updated and are maintained on an ongoing basis.*

### Health and safety: short-term

By 30 June 2007

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.

*The hazard registers have been recently reviewed and no issues relating to their effectiveness have been identified.*

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 Water Supply department's 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 Regional Council staff or the general public is eliminated, isolated or minimised.

*Contractor health and safety plans continue to be reviewed prior to engagement.*

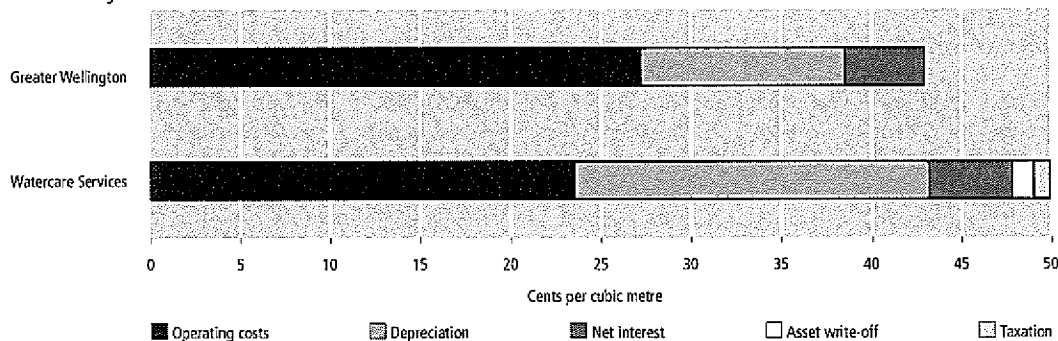
*The contractor drilling a new sentinel well in Petone received an electric shock after striking an underground electric cable. The driller appears to have suffered no effects. The contractor's health and safety plan was in place and had been reviewed by GW Water. The cable was not identified in the utility company mark-out and is not on any service drawing.*

## Benchmarking of costs

GW Water's performance has been compared 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. The costs shown for GW Water – 42.9 cents per cubic metre (cents/cum) of water supplied – resulted in a deficit relative to the water levy paid by our four territorial authority customers equivalent to 2.2 cents/cum of water supplied. When other income is taken into account the deficit is equivalent to 0.6 cents/cum of water supplied. Watercare's result includes a capital cost contribution equivalent to 2.8 cents/cum of water supplied and an upward revaluation of its derivative financial instruments, equivalent to 0.6 cents/cum of water supplied, which are not evident from the following graph. The inclusion of these items results in a surplus equivalent to 1.0 cents/cum of water supplied.

### Potable water supply costs

For the year ended 30 June 2006



## Water sources

### Water abstraction (millions of litres)

For the year ended 30 June

Source	Annual					Maximum week			Maximum day		
	Total		Percent	Average day		Date	Average day		Date	Day	
	2007	2006		2007	2006		2007	2006		2007	2006
<b>River and stream abstraction</b>											
Kaitoke/Te Marua	27,895	28,544	46.1%	76.4	78.2	2/8/06	130.0	137.1	5/2/07	137.4	144.0
Wainuiomata	5,281	3,662	8.7%	14.5	10.0	2/8/06	31.3	29.6	18/7/06	36.2	40.7
Orongorongo	1,288	1,749	2.1%	3.5	4.8	30/5/07	13.4	22.5	13/6/07	21.8	24.8
George Creek	1,458	1,024	2.4%	4.0	2.8	29/11/06	8.3	6.2	3/8/06	11.5	8.6
Big Huia Creek	420	663	0.7%	1.1	1.8	20/6/07	6.8	6.1	18/6/07	10.4	9.5
<b>Total – rivers</b>	<b>36,341</b>	<b>35,641</b>	<b>60.0%</b>	<b>99.6</b>	<b>97.6</b>	<b>2/8/06</b>	<b>169.1</b>	<b>168.6</b>	<b>28/7/06</b>	<b>177.2</b>	<b>175.9</b>
<b>Public artesian abstraction</b>											
Waterloo	24,114	26,272	39.8%	66.1	72.0	19/7/06	82.1	84.5	16/7/06	94.6	99.0
Gear Island	100	70	0.2%	0.3	0.2	12/7/06	3.1	3.3	8/7/06	12.6	10.6
<b>Total – artesian</b>	<b>24,214</b>	<b>26,341</b>	<b>40.0%</b>	<b>66.3</b>	<b>72.2</b>	<b>12/7/06</b>	<b>83.7</b>	<b>84.7</b>	<b>8/7/06</b>	<b>101.2</b>	<b>99.3</b>
<b>Total public abstraction</b>	<b>60,555</b>	<b>61,983</b>	<b>100.0%</b>	<b>165.9</b>	<b>169.8</b>	<b>2/8/06</b>	<b>231.1</b>	<b>218.6</b>	<b>11/12/06</b>	<b>252.8</b>	<b>253.6</b>

Totals may not add exactly due to rounding

## Rainfall levels (millimetres)

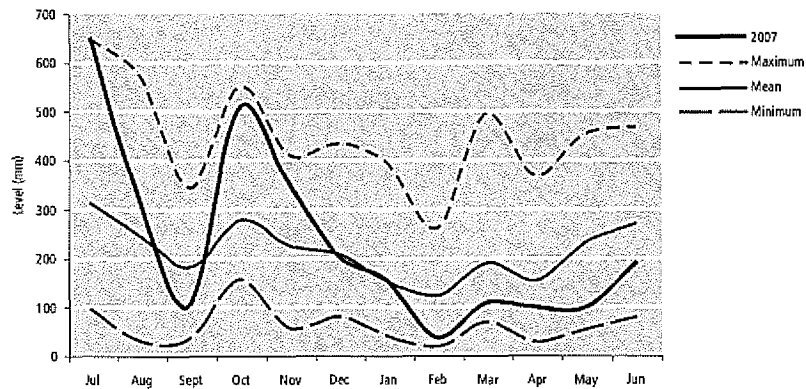
For the year ended 30 June

	Kaitoke <sup>1</sup>	Karori <sup>2</sup>	Orongorongo <sup>3</sup>	Wainuiomata <sup>4</sup>
2007	2,444	1,274	2,752	2,123
2006	1,694	931	2,011	1,546
Mean of data record	2,344	1,237	2,513	1,938
2007: mean	104%	103%	110%	110%

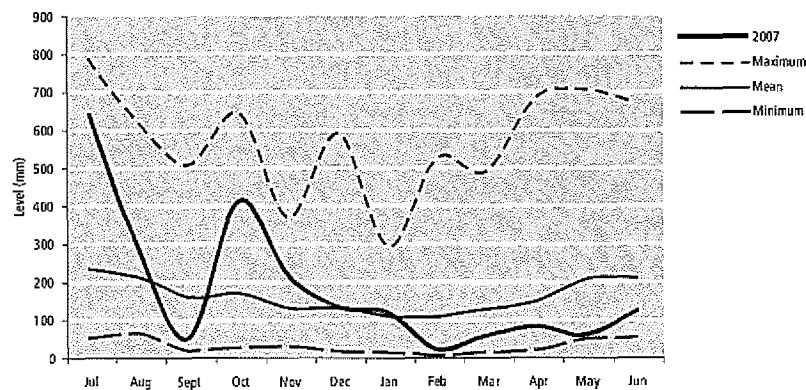
<sup>1</sup> Kaitoke Headworks rain gauge, <sup>2</sup> Karori Sanctuary rain gauge, <sup>3</sup> Orongorongo Swamp rain gauge, <sup>4</sup> Wainuiomata Reservoir rain gauge

The following graphs show average rainfall per month in our surface water catchments for the year to 30 June 2007, compared with the maximum, minimum and mean of the data record for each site.

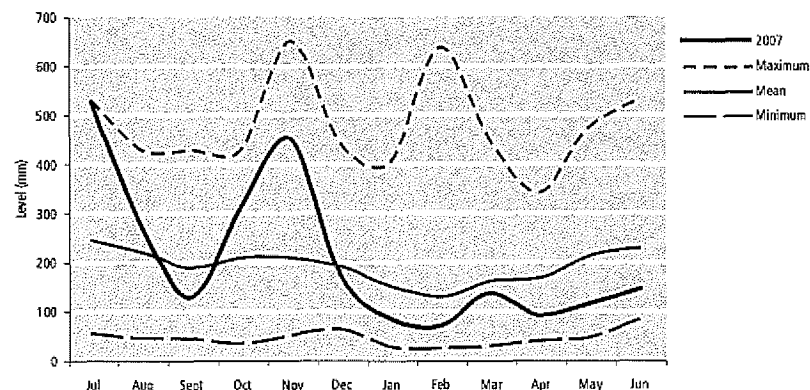
### Orongorongo catchment rainfall (Orongorongo Swamp record 1980 – 2007)



### Wainuiomata catchment rainfall (Wainuiomata Reservoir record 1890 – 2007)



### Hutt catchment rainfall (Kaitoke Headworks record 1951 – 2007)



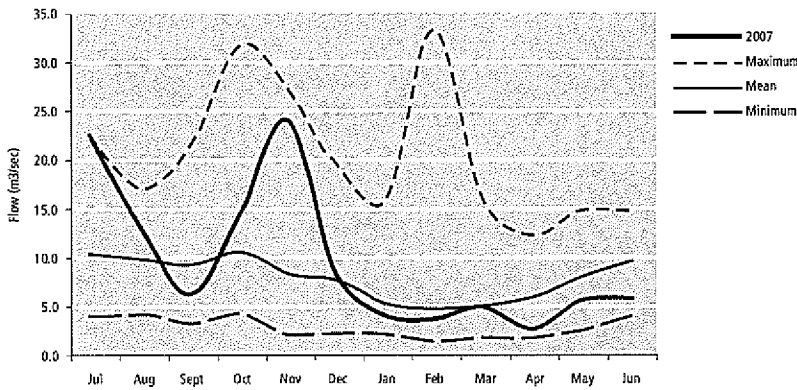


## Levels and flows from water sources

The following three graphs show the historical high, low and average levels or flow rates for the main water sources used to supply the Wellington metropolitan area, compared with data for the 12 months to 30 June 2007.

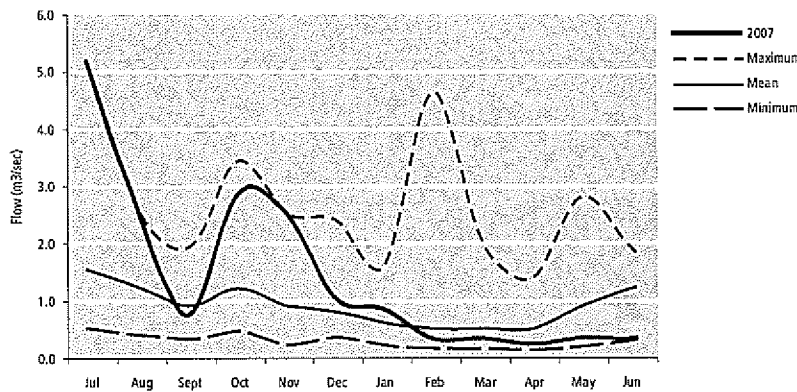
### Hutt River (Kaitoke record 1968-2007)

#### Average monthly flow rate for the year ended 30 June



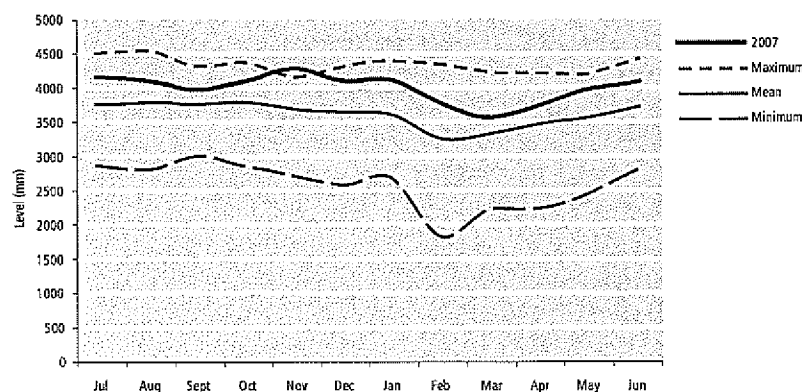
### Wainuiomata River (Manuka Track record 1982-2007)

#### Average monthly flow rate for the year ended 30 June



### Waiwhetu Aquifer (McEwan Park record 1971-2007)

#### Average monthly level for the year ended 30 June



## Distribution shutdowns

In the year ended 30 June 2007 there were 72 shutdowns (2006 = 57) on GW Water's wholesale water supply mains. No loss of pressure or supply to customers resulted.

Thirty-three shutdowns were unscheduled, for the repair of leaking or burst mains, or to repack leaking valves, compared with 12, 13, 19, 21 and 16 in the previous five financial years (2006, 2005, 2004, 2003 and 2002 respectively).

The remaining 39 shutdowns were scheduled (2006 = 45). This work was required to install new or refurbished pipes and valves (31), remove redundant distribution assets (5), to mitigate the risk to third parties working in close proximity to our high-pressure mains (1) and for planned maintenance (2).

All shutdowns were completed and the supply reinstated without loss of pressure or supply to our customers. Several of the shutdowns took more than eight hours to reinstate, but in these cases, alternative water supplies were available.

## Resource consents

### Resource consents held

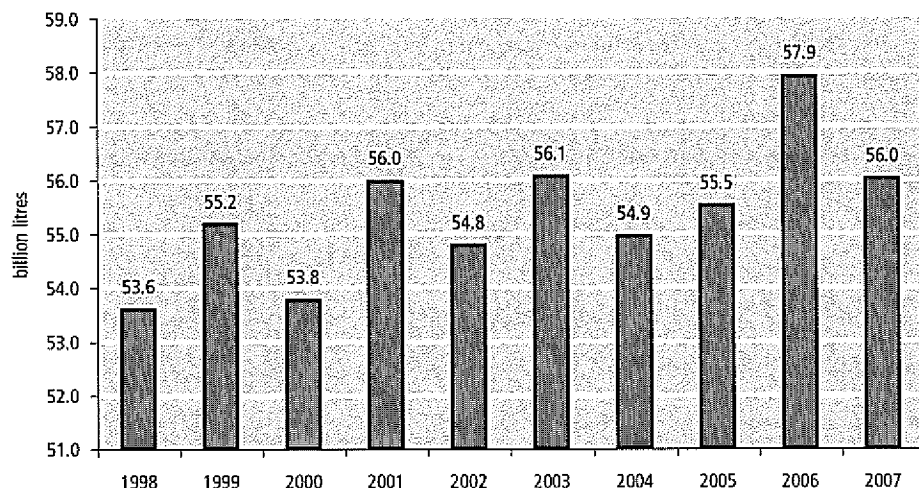
As at 30 June 2007

Water take	Land use	Discharge	Total
10	53	20	83

For the year to 30 June, we received full compliance for all consents held.

## Water supplied to customers

Water supply figures have historically been recorded 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 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 1996, 2000 and 2004 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
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
% change	-1.1%		-2.4%		-7.6%		-3.6%		-3.2%	
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
1999	14,986	41.1	5,777	15.8	5,741	15.7	28,661	78.5	55,165	151.1
1998	14,679	40.2	5,499	15.1	5,111	14.0	28,296	77.5	53,585	146.8

### Average per capita daily supply (litres)

For the year ended 30 June 2007

	Hutt City	Porirua City	Upper Hutt City	Wellington City	Total
Population <sup>1</sup>	99,900	50,500	35,700	187,200	373,400
Households <sup>2</sup>	35,727	15,564	14,253	68,901	134,445
Gross litres/head/day	386	343	392	447	411
Gross litres/household/day	1,079	1,112	983	1,211	1,142

<sup>1</sup> Estimated usually-resident population, urban areas – Statistics NZ, 30 June 2006

<sup>2</sup> 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 area
	7/3/07	14/2/07	7/3/07	7/3/07	7/3/07
Maximum week 2007					
Total of max. week					
2007	316.9	143.9	122.1	669.0	1,246.8
2006	315.6	147.7	127.8	692.0	1,270.2
% change	+0.4%	-2.6%	-4.5%	-3.3%	-1.8%
Avg. day of max. week					
2007	45.3	20.6	17.4	95.6	178.1
2006	45.1	21.1	18.3	98.9	181.5

## '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
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
% Change	+0.3%		+0.8%		-2.8%		+3.3%		+1.7%	
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
1999	3,452	37.5	1,315	14.3	1,284	14.0	6,810	74.0	12,861	139.8
1998	3,405	37.0	1,281	13.9	1,184	12.9	6,711	72.9	12,581	136.8

Note: figures are July and August from one calendar year and June from the next. e.g. 2007 represents July and August 2006 and June 2007

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 most of the increase seen in total base supply during the last two financial years.

## Water quality

### Chemical monitoring of the wholesale 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 DWSNZ 2005.

### Mean values of chemical analysis at treatment plants

For the year ended 30 June 2007

Parameter	GV or MAV <sup>(A)</sup>	Te Marua		Wainuiomata		Waterloo		Gear Island	
		No. of samples	Value	No. of samples	Value	No. of samples	Value	No. of samples	Value
Alkalinity (total), mg/L CaCO <sub>3</sub>	-	247	31	52	36	51	56	11	67
Aluminium (acid soluble), mg/L	0.10	11	<0.02	11	0.02	-	-	-	-
Arsenic (total), mg/L	0.01	2	<0.001	2	<0.001	4	<0.001	4	<0.001
Boron, mg/L	1.4	2	0.02	2	0.02	4	0.03	4	0.03
Cadmium (total), mg/L	0.004	2	<0.0002	2	<0.0002	4	<0.0002	4	<0.0002
Calcium (total), mg/L	<sup>(B)</sup>	5	10.15	5	15.50	5	20.04	4	11.0
Chloride, mg/L	250	4	7.93	4	22.50	4	15.25	4	15.50
Chromium (total), mg/L	0.05	2	<0.001	2	<0.001	4	<0.001	4	<0.001
Colour (true), PtCo units	10	53	<5	52	<5	-	-	-	-
Conductivity, µS/cm @ 25°C	-	12	109.17	12	162.33	12	181.67	10	203
Copper (total), mg/L	2	12	0.04	12	<0.02	12	<0.02	10	<0.02
Cyanide (total), mg/L	0.08	2	<0.01	2	<0.01	3	<0.01	3	<0.01
Fluoride, mg/L	1.5 <sup>(C)</sup>	247	0.80	236	0.79	416	0.81	298	0.77
Hardness (total), mg/L CaCO <sub>3</sub>	200	12	30.83	12	48.50	12	62.42	10	44
Iron (total), mg/L	0.2	12	0.05	12	0.05	12	0.09	10	0.11
Langelier saturation index	≥0	12	-1.32	12	-1.12	12	-0.75	10	-1.02
Lead (total), mg/L	0.01	2	<0.0003	2	<0.0003	4	<0.0003	4	<0.0003
Magnesium (total), mg/L	<sup>(B)</sup>	2	1.2	2	2.1	4	2.9	4	4.2
Manganese (total), mg/L	0.4	12	<0.05	12	<0.05	12	<0.05	10	<0.05
Mercury (total), mg/L	0.002	2	<0.0005	2	<0.0005	4	<0.0005	4	<0.0005
Nickel (total), mg/L	0.02	2	<0.0005	2	<0.0005	4	<0.0005	3	<0.0005
Nitrate, mg/L –N	50	2	0.04	2	0.06	4	0.71	4	1.15
pH	7.0-8.5	247	7.7	52	7.6	51	7.6	64	7.62
Selenium (total), mg/L	0.01	2	<0.005	2	<0.005	4	<0.005	4	<0.005
Silica (molybdate-reactive), mg/L	-	2	8.55	2	12.50	4	15.75	4	16
Sodium (total), mg/L	200	4	9.38	4	12.75	4	11.50	4	26
Solids (total dissolved), mg/L	1000	1	71	1	100	1	120	1	130
Sulphate, mg/L	250	4	7.98	4	5.18	4	6.33	4	6.95
Turbidity, NTU	2.5	53	0.11	52	0.26	51	0.48	-	-
Zinc (total), mg/L	1.5	12	<0.05	12	<0.05	12	<0.05	10	<0.05

Notes: Values preceded by the < symbol indicate the detection limit for that test. <sup>(A)</sup> Drinking Water Standards for New Zealand 2005, Guideline Values (GV) or Maximum Allowable Values (MAV). A dash in the 'GV or MAV' column indicates that there is no applicable guideline or maximum allowable value.

<sup>(B)</sup> See Hardness. <sup>(C)</sup> 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 wholesale 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 for 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 neutralised.

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 treatment plants.

Regional public health units assess microbiological compliance to the DWSNZ on behalf of the Ministry of Health. Until recently, these assessments were for calendar years. We reported compliance for 2005 in our last annual report (2005/06). Since then, the Regional Public Health unit of HVDHB has agreed to assess our operations on a June-year basis, to correspond with our financial year.

We have received provisional notice of microbiological compliance for our Te Marua, Wainuiomata, Waterloo and Gear Island treatment plants. This result covers the 18-month period, from 1 January 2006 to 30 June 2007. 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 the 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 (unchlorinated 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.

A summary of results for the 12 months from 1 July 2006 to 30 June 2007 is given below.

### ***E.coli* results – summary of samples collected**

For the year ended 30 June 2007

Distribution zone	DWSNZ MAV <sup>(1)</sup>	No. of samples	No. of positive results
Central Hutt / Petone	<1	310	1
Wainuiomata / South Wellington	<1	393	0
Upper Hutt / Porirua / North Wellington	<1	370	0

<sup>(1)</sup> Drinking-water Standards for New Zealand 2005, Maximum Allowable Value (MAV).

Following the single positive result from the Central Hutt/Petone zone, retesting was carried out as prescribed in the DWSNZ. No *E.coli* was detected. We received provisional compliance with the DWSNZ, for the 18-month period from 1 January 2006 to 30 June 2007, from HVDHB. We expect this result will be confirmed in due course.

## 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 2006/07 financial year, and (2) additional background information where needed.

	Targets	Achievement 2006/07	Comment
<b>Objective 1.1</b>	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)	Achieved. All demand met without restrictions. New long-term water source options being investigated.	GW Water uses a complex supply and demand model (sustainable yield model) to assist with strategic planning. This SYM indicates that there is sufficient water available to service a population of 377,000 to a 1-in-50-year reliability standard. Statistics New Zealand's current population projections indicate that this level of population may be reached as soon as 2008. A wide range of options for supplementary supply are being considered, including taking more water direct from the Hutt River, abstracting water from the Upper Hutt aquifer or building a storage dam.
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 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)  [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 1 in 50 years.]	Achieved. Customers consulted re capital work. All demand met without restrictions.	Customers are consulted annually about their requirement for new supply points to meet population movement within their boundaries. We are working with Wellington City Council to provide water to a new subdivision in Grenada, and with Wellington and Capital and Coast District Health Board on a joint storage proposal for southern Wellington. Various seismic strength improvement projects were also progressed or completed, including new pumping stations at Karori and Point Howard.
<b>Objective 1.2</b>	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: <ul style="list-style-type: none"> <li>• Maintain at least 70% full for 90% of the time</li> <li>• Maintain at least 60% full for 98% of the time</li> </ul> (Annual performance indicator) [Note: Compliance with this target will be assessed by interrogating reservoir level data recorded at 15-minute intervals.]	Not fully achieved. 60% full target met for 540 of 552 reservoir-months (97.8%). 70% full target met for 538 of 552 reservoir-months (97.5%).	The 60% target was not achieved for 40 reservoir-months in total. However, 28 of these events were because customers requested that we limit filling of individual reservoirs to facilitate maintenance or repairs, or failure of customer telemetry equipment. A further three events were directly due to planned works by GW Water on reservoirs or pipelines, which necessitated use of storage. The remaining nine events were unexpected and resulted from a combination of Wainui being off and high demand, equipment failure or avoidance of peak 'time of use' power tariffs.  The 70% target was not achieved for 40 reservoir-months in total. However, 26 of these events were because customers requested that we limit filling of individual reservoirs to facilitate maintenance or repairs, or failure of customer telemetry equipment. A further five events were directly due to planned works by GW Water on reservoirs or pipelines, which necessitated use of storage. The remaining nine events were unexpected and resulted from a combination of Wainui being off and high demand, equipment failure or avoidance of peak 'time of use' power tariffs.

	Targets	Achievement 2006/07	Comment
<b>Objective 1.3</b>	<b>Maintain system pressure above agreed minimum levels</b>		
Target 1.3.1	Maintain the wholesale supply pressure into the Thorndon Zone above 85m for 90% of the time and above 80m and below 100m for 98% of the time. (Annual performance indicator)  [Note: Compliance with this target will be assessed by interrogating pressure data recorded at 15-minute intervals.]	Achieved.  Above 80m and below 100m pressure target met for all 12 months.  Above 85m pressure target met for all 12 months.	Thorndon Zone pressure above 80m and below 100m for at least 99.0% of the time for each month (range = 99.0% to 100.0%).  Thorndon Zone pressure above 85m for at least 95.3% of each month (range = 95.3% to 99.9%).
<b>Objective 2.1</b>	<b>Comply with the microbiological, chemical and aesthetic requirements of the DWSNZ for water leaving the treatment plants</b>		
Target 2.1.1	Comply with the microbiological requirements of the DWSNZ for water leaving the treatment plants 100% of the time. (Annual performance indicator)	Achieved.	The Regional Public Health unit of HVDHB has advised provisional microbiological compliance with the DWSNZ 2005 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.	The Regional Public Health unit of HVDHB has advised provisional chemical compliance with the DWSNZ 2005 for our four water treatment plants.
Target 2.1.3	Comply with the aesthetic requirements of the DWSNZ for water leaving the treatment plants. (Annual performance indicator)	Not achieved.  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 <i>Public Health Grading of Community Drinking-Water Supplies 2003</i> . 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 re-graded (2006/07 and 2004/05 respectively). Both plants are graded 'A1'.
Target 2.1.3.1	Construct a powdered activated-carbon plant at Te Marua to eliminate unacceptable taste originating from algal blooms, by 30 September 2007.	Progressed.	We designed and built a portable system for dosing activated carbon into the plant's inlet mixing chamber. At 30 June, we had still to complete programming and commissioning.
Target 2.1.4	Develop monthly compliance reports that source data directly from the control systems of the water treatment plants, by 31 December 2007.	Progressed.	Reporting requirements are still to be confirmed by HVDHB. We expect to complete this target before our deadline.
<b>Objective 2.2</b>	<b>Comply with the microbiological, chemical and aesthetic requirements of the DWSNZ for water in the distribution system</b>		
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.	The Regional Public Health unit of HVDHB has advised provisional microbiological compliance with the DWSNZ 2005 for our four water treatment plants.
Target 2.2.3	Comply with the aesthetic requirements of the DWSNZ for water in the distribution system 90% of the time. (Annual performance indicator)	Provisionally achieved.	We are monitoring for aesthetics and believe that our records show our distribution system fully met the compliance criteria, consistent with the DWSNZ and the <i>Public Health Grading of Community Drinking-Water Supplies 2003</i> . Aesthetic compliance information was submitted to HVDHB on 9 July 2007.
Target 2.2.4	Develop monthly compliance reports that source data directly from the control systems of the water treatment plants, by 31 December 2007.	Progressed.	Reporting requirements are still to be confirmed by HVDHB. We expect to complete this target before our deadline.



	Targets	Achievement 2006/07	Comment
<b>Objective 3.1</b>	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	In fluoridated supplies, comply with Ministry of Health recommendations for the addition of fluoride 85% of the time. (Annual performance indicator)	Mainly achieved.	Compliance by treatment plant: Te Marua 94%, Wainuiomata 92%, Waterloo 98%, Gear Island 80%. A vital piece of the fluoride dosing system at Gear Island failed in December 2006 and could not be replaced until February 2007. We do not hold spare parts for the fluoride system, as low fluoride is not critical to compliance with the DWSNZ.
<b>Objective 4.1</b>	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 4 August 2007.
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 June 2006, we ran a report of assets due to reach 90% of their economic life by 30 June 2007. We had not undertaken condition assessments of these assets by 30 June 2007.
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)
<b>Objective 4.2</b>	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 196% at 30 June 2007.
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 the New Zealand Infrastructure Asset Valuation and Depreciation Guide. (Annual performance indicator)	Not achieved.	Our assets were last re-valued at 30 June 2004, as per the requirements of the New Zealand Infrastructure Asset Valuation and Depreciation Guide. New assets constructed during the 2006/07 financial year have been added to the asset register at cost, while assets that were replaced have been written off. An asset revaluation was calculated, based on Statistics New Zealand's 2006/07 construction cost indices. However, Audit New Zealand decreed that this adjustment did not comply with the accounting standard, and so it has not been included in the book value of the assets.
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 \$15.2 million (m), compared with a budget of \$16.0m.
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)	Achieved.	Proposed capital works programme for 2007/08 presented to customers on 27 April 2007.
Target 4.2.5	Ensure that the annual capital works programme is completed within budget. (Annual performance indicator)	Not achieved.	The capital works budget was \$6.230m. Actual full-year expenditure was \$3.858m. However, the full capital works programme was not completed. (See financial overview, page 15)
Target 4.2.6	Ensure that 90% of the major capital works projects nominated in the annual operating plan do not exceed the approved funding plus 20%. (Annual performance indicator)	Not achieved.	Of the 34 projects in the operating plan that were completed during 2006/07, 76% were completed within the criteria.

Targets	Achievement 2006/07	Comment
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. All other significant assets are covered by insurance policies, which cover the replacement costs, which are updated annually. The insurance reserve fund stood at \$11.0m at 30 June 2007.
Target 4.2.8	Consult with the customer territorial authorities regarding the content of each proposed annual plan and long-term council community plans (LTCCPs) by 30 June each year. (Annual performance indicator)	Achieved. The proposed annual plan for 2007/08 was presented to Upper Hutt, Wellington and Porirua city councils during May 2007, and Hutt City Council in June 2007. Their views have been noted.
Target 4.2.9	Achieve unit costs (both total and operating) per million litres of water produced that are comparable with other wholesale 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 30)
<b>Objective 5.2</b>	<b>The Te Marua and Wainuiomata treatment plants will obtain an 'A1' grading</b>	
Target 5.2.1	The Te Marua and Wainuiomata treatment plants will meet all requirements for an 'A1' grading by 30 June 2007.	Achieved. 'A1' grading for Te Marua received 30 March 2007. 'A1' grading was retained for Wainuiomata.
<b>Objective 5.3</b>	<b>The Waterloo Water Treatment Plant will retain its 'B' grading, unless Hutt City Council changes its policy of supplying un-chlorinated water to central Lower Hutt, Petone and Eastbourne</b>	
Target 5.3.1	The Waterloo Water Treatment Plant will meet all requirements for a 'B' grading by 30 June 2007.	Achieved. Waterloo was assessed as 'B' grade by HVDHB on 26 April 2007. Hutt City Council prefers to receive an un-chlorinated supply for central Lower Hutt, Petone and Eastbourne. This requirement means 'B' is the highest grading achievable.
<b>Objective 5.4</b>	<b>The Gear Island Water Treatment Plant will obtain an 'A' grading</b>	
Target 5.4.4	Resolve administrative treatment of Gear Island in WINZ by 30 June 2007.	Achieved.
Target 5.4.5	Collect 12 months of compliant FAC data by 31 December 2007.	Progressed. Reporting requirements are still to be confirmed by HVDHB. We expect to complete this target before our deadline.
<b>Objective 6.1</b>	<b>The Upper Hutt / North Wellington and Central Hutt / Petone zones will receive 'a' gradings</b>	
Target 6.1.1	Assemble and collate data, and forward to the drinking water assessor by 30 June 2007.	Mainly achieved. Data was collated and supplied to Regional Public Health on 9 July 2007.
<b>Objective 6.2</b>	<b>The Wainuiomata / South Wellington zone will receive an 'a' grading by 30 June 2007, provided that the cost of doing so is acceptable to GW Water and its customers</b>	
Target 6.2.1	Assemble and collate data, and forward to the drinking water assessor by 30 June 2007.	Mainly achieved. Data was collated and supplied to Regional Public Health on 9 July 2007.
<b>Objective 7.1</b>	<b>An environmental management system certified under the terms of ISO 14001:2004 – <i>Environmental Management Systems – Specification with guidance for use</i> – will be maintained</b>	
Target 7.1.1	Maintain certification to ISO 14001:2004. (Annual performance indicator)	Achieved. Certification was maintained following an audit by BVQI in October 2006.

# 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 2006/07 financial year, and (2) additional background information where needed.

	Targets	Achievement 2006/07	Comment
<b>Objective 1.1</b>	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. (Annual performance indicator)	Achieved.	
<b>Objective 1.2</b>	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 GW Water's management systems co-ordinator.
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 Waterloo treatment plants. A permit was held for Greater Wellington's Laboratory, until it was disestablished on 30 June 2007.
Target 1.2.3	Obtain and keep up to date all necessary dangerous goods licences, 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 <i>Hazardous Substance and New Organism Act</i> by the dates required by regulation.	Achieved.	By 30 June 2007, we had implemented the new hazardous substance component of the Hazardous Substance and New Organism Act.
<b>Objective 1.3</b>	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)	Achieved.	
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.	All necessary reporting was provided to the consent manager within the required timeframes.
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
<b>Objective 2.1</b>	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.	Our current procedure was introduced in September 2004. We reviewed this change in 2005.
<b>Objective 2.2</b>	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.	All reports include an assessment of environmental impact. In most cases the impacts are minor or insignificant.
<b>Objective 3.1</b>	Adopt all practicable means to prevent pollution of the environment		
Target 3.1.1	For all water treatment plants, monitor and report annually on accidental discharges of substances with the potential to harm the environment. (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 2006/07	Comment
Target 3.1.2	Construct bunds at all water treatment plants to contain spills from chemical dosing lines.	Achieved.	Additional bunding of chemical lines was completed by 30 June 2007.
Target 3.1.3	Reduce chemical use, by introducing a split-stream process at Te Marua by 31 December 2007.	Achieved.	Split-streaming was introduced in the first quarter of the 2006/07 year. For the year to 30 June 2007, total chemical use by volume of water treated at Te Marua was 30% lower than during the previous year.
<b>Objective 3.2</b>	<b>Treat and dispose of wastes in an environmentally safe manner</b>		
Target 3.2.1	Comply with trade waste permit conditions for the tenure of each permit and report annually. (Annual performance indicator)	Achieved.	Trade waste permits are held for Te Marua and Waterloo treatment plants, while a permit was held for our laboratory until its disestablishment on 30 June 2007. Hutt City Council's Trade Waste Section carries out an annual compliance audit. No matters of concern were raised.
Target 3.2.2	Comply with the requirements of all discharge consents. (Annual performance indicator)	Achieved.	
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 properly consented landfill at Silverstream.
Target 3.2.4	Install a centrate sewer main from Wainuiomata Water Treatment Plant by 30 June 2007.	Not achieved.	At 30 June, the centrate sewer had been designed, with installation scheduled to commence shortly.
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.
<b>Objective 3.3</b>	<b>Adopt policies, procedures and practices that will reduce waste</b>		
Target 3.3.1	Review operation of the waste water plants at Te Marua and Wainuiomata treatment plants, to optimise performance, by 31 December 2007.	Progressed.	See 'wastewater recovery optimisation', page 6.
Target 3.3.2	Investigate re-use or volume reduction for waste lime at Wainuiomata treatment plant by 30 September 2007.	Progressed.	See 'lime re-use – Wainuiomata', page 6.
Target 3.3.3	Investigate options for increasing the solids content of sludge by 30 June 2008.	Progressed.	
<b>Objective 4.1</b>	<b>Recognise the natural limits of regional water resources</b>		
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 abstraction efficiency performance (see page 4) or distribution efficiency performance. (See page 8)
Target 4.1.2	Further investigations of losses between Kaitoke and Te Marua to be undertaken by 31 December 2007.	Progressed.	At 30 June, we were in the process of checking meter accuracy and investigating water losses from the tunnels between Kaitoke Weir and Te Marua.
Target 4.1.3	Complete draft water management plan, subject to timely responses from territorial authorities, by 31 December 2006.	Not achieved.	A peer review of the plan's technical report (the toolkit) was carried out for us in August 2006. The recommendations were reviewed with our customers and agreement reached on follow-up actions. This included public opinion research, which was being commissioned at 30 June. (See also page 8)
Target 4.1.4	In conjunction with the Resource Investigations Section, install additional sentinel wells on Petone foreshore to reduce the risk of saltwater intrusion into the Waiwhetu aquifer by 31 December 2007.	Achieved.	Three new wells drilled; one at McEwan Park and two at the Tamatoa building, near Petone Wharf. (See also page 8)

	Targets	Achievement 2006/07	Comment
<b>Objective 4.2</b>	<b>Minimise energy use</b>		
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.	Monitoring had identified low power factors at four sites. Of these, power-factor correction equipment has been installed at Wainuiomata and Gear Island treatment plants and at Ngauranga Pumping Station. Equipment will be installed at the fourth site, Waterloo treatment plant, during the 2007/08 year.
Target 4.2.2	Every two years, review the efficiency of the boost and treatment pumps at: <ul style="list-style-type: none"> <li>• Colin Grove</li> <li>• Hautana Street</li> <li>• Mahoe Street</li> <li>• Penrose Street No. 1</li> <li>• Penrose Street No. 2</li> <li>• Willoughby Street No. 1</li> <li>• Willoughby Street No. 2</li> <li>• Kaiwharawhara Pumping Station</li> <li>• Te Marua Pumping Station</li> <li>• Waterloo Water Treatment Plant</li> </ul> (Annual performance indicator)	Achieved.	Last reviews completed by 31 May 2006.
Target 4.2.3	Every five years, review the efficiency of the boost and treatment pumps at: <ul style="list-style-type: none"> <li>• Johnsonville Pumping Station</li> <li>• Karori Pumping Station</li> <li>• Point Howard Pumping Station</li> <li>• Moores Valley Pumping Station</li> <li>• Ngauranga Pumping Station</li> <li>• Warwick Street Pumping Station</li> <li>• Te Marua Water Treatment Plant</li> <li>• Wainuiomata Water Treatment Plant</li> <li>• Wainuiomata No. 1 Pumping Station</li> </ul> (Annual performance indicator)	Achieved.	Last reviews completed by 30 June 2006.
Target 4.2.4	Adopt the use of energy-efficient products and equipment, where practicable and economic. (Annual performance indicator)	Progressed.	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.  An EECA-sponsored energy audit was completed and an energy manager appointed on contract to implement power use efficiency projects. We are investigating micro-hydro plants at Te Marua and Wainuiomata, to provide part of our power needs. We installed power-factor correction equipment at several sites and other projects are being developed. (See page 5)
Target 4.2.5	Install power-factor correction equipment at Wainuiomata and Gear Island treatment plants, and Ngauranga Pumping Station, by 30 June 2007, and at Waterloo treatment plant by 30 June 2008.	Achieved.	Power-factor correction equipment was installed at Wainuiomata and Gear Island treatment plants and at Ngauranga Pumping Station. We have programmed the installation of equipment at Waterloo treatment plant during the 2007/08 year.
<b>Objective 5.1</b>	<b>Prevent damage to significant habitats and ecosystems</b>		
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. (ongoing)	Minimum flow and flow-sharing arrangements are written into resource consents for water take and the control logic for operating software systems. Consented minimum downstream flows were always maintained. We have completed a range of field investigations and held stakeholder discussions regarding how best to evaluate low flow requirements for the Hutt River. This work will be finalised in 2007/08, to support an application to allow us to take more water while providing increased assurance that ecological values will be protected. (See also page 8)

Targets	Achievement 2006/07	Comment
Target 5.1.2	Achieved.	We did not undertake new capital works that affected significant ecosystems. Impacts of proposed future dams are being studied in detail. Lowering the spillway of the lower dam at Wainuiomata provides the opportunity to develop a new wetland immediately upstream. (see target 5.1.6)
Target 5.1.6	Progressed.	We lowered the dam's spillway and re-lined the plunge pool in preparation for creating a shallow lake behind the dam. We delayed sealing the dam's tunnel and scours until September 2007, after the trout-spawning season. (See also page 7)
<b>Objective 6.1</b>	<b>All recommendations made by the Utility Services Committee involving investment or the use of natural resources shall include consideration of environmental impacts</b>	
Target 6.1.1	Achieved.	Consistent with Greater Wellington Regional Council policy, assessment of environmental impacts is included in all reporting.
<b>Objective 7.1</b>	<b>Achieve environmental awareness by all GW Water staff</b>	
Target 7.1.1	Achieved.	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)
<b>Objective 7.2</b>	<b>Ensure that all staff members whose actions have potential environmental impacts understand that potential</b>	
Target 7.2.1	Achieved.	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)
<b>Objective 8.1</b>	<b>Ensure that third parties engaged by GW Water are aware of environmental matters or concerns associated with the work they are engaged to do</b>	
Target 8.1.1	Achieved.	All formally documented works and supply contracts shall include any applicable environmental requirements. (Annual performance indicator)
<b>Objective 8.2</b>	<b>Where practicable, the environmental performance of a contractor or supplier shall be taken into account in the assessment of tenders</b>	
Target 8.2.1	Achieved.	We use the weighted attribute assessment method, including environmental performance, to assess all tenders for major works.
<b>Objective 9.1</b>	<b>Report annually on resource consent compliance</b>	
Target 9.1.1	Achieved.	Facilitate the preparation of the Environmental Regulation Department's annual compliance report. (Annual performance indicator)
<b>Objective 9.2</b>	<b>Report annually on the environmental performance of GW Water</b>	
Target 9.2.1	Achieved.	We published our report for 2005/06 in November 2006. Greater Wellington's Policy, Finance and Strategy Committee will consider for adoption our report for 2006/07 on 27 September 2007.

## Utility Services Committee members

The following councillors were members of the Utility Services Committee for the year ended 30 June 2007. The membership of the committee will change following local body elections in October 2007.

**Rex Kirton**

Chairman  
(Upper Hutt constituency)

**Peter Glensor**

Deputy Chairman  
(Lower Hutt constituency)

**Judith Aitken**

(Wellington constituency)

**Ian Buchanan**

Council Chairman (ex-officio)<sup>1</sup>  
(Wairarapa constituency)

**Sandra Greig**

(Lower Hutt constituency)

**Chris Laidlaw**

(Wellington constituency)

**Rick Long**

(Wairarapa constituency)

<sup>1</sup> The Council Chairperson is not a member of the Utility Services Committee when considering regional wholesale water supply matters