



Water supply annual report

For the year ended 30 June 2004

Quality for Life



greater WELLINGTON
REGIONAL COUNCIL

Water



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Introduction

Reporting scope

This report covers the main achievements and challenges for Greater Wellington Regional Council's bulk water supply activity (Greater Wellington Water), arising during the 2003/04 financial year.

The Council's statutory reporting requirements are fulfilled by its Annual Report. This report is supplementary to the Annual Report and is intended to provide our water supply customers and other stakeholders with a more detailed account of our bulk water supply operation.

The commentary contained in pages 3-11 reflects our long-term performance indicators (PIs) and is referenced to objectives and targets from our Quality (QMS) and Environmental (EMS) Management Systems. It includes social and environmental sections in addition to financial reporting, consistent with a triple bottom line approach, but is limited to the scope of our PIs and management systems.

Our Quality and Environmental Management Systems are based on a process of continuous review and improvement. The objectives and targets for both management systems appear in full from page 32.

Our purpose

We aim to provide a quality, cost-effective bulk water supply service for the benefit of the people of Greater Wellington.

What we do

We collect, treat and distribute high-quality potable water to four city councils – Hutt, Porirua, Upper Hutt and Wellington – for their supply to consumers. This involves:

- Operating four water treatment plants, 15 pumping stations and 183 kilometres of pipeline
- Supplying on average, 150 million litres of water daily, 1,730 litres every second, to meet the needs of about 360,000 people
- Targeting an 'A' grade standard for treated water, where consistent with customer requirements
- Forecasting future water needs and planning to ensure they can be met
- A commitment to environmentally responsible working practices
- Managing assets valued at \$296 million.

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

Governance and organisation structure

Greater Wellington's water supply role is defined by the Wellington Regional Water Board Act (1972). Councillors are responsible for setting water supply policy; the Council's Utility Services Committee oversees the work programmes carried out by Greater Wellington (GW) Water. GW Water is organised into five main functional areas: Operations (production and distribution); Laboratory; Engineering Consultancy (project design and management); Strategy & Asset (system planning, asset management, reporting and communications); and Support (financial, administrative and secretarial services).

Performance indicators

GW Water has six long-term PIs: water quality, security of supply, environmental management, customer service, business efficiency and health and safety. Each PI has related objectives and targets. Details of our long-term objectives for each PI and performance against the short-term targets for 2003/04 are published from page 21 of this report. Greater Wellington Regional Council's Long-term Council Community Plan – Towards a Sustainable Region 2003-2013 – includes targets for each PI for the next two years. Towards a Sustainable Region 2003-2013 and the 2004/05 Annual Plan are available on Greater Wellington's Internet site or by contacting us (see back cover).

Management systems

We operate Quality and Environmental Management Systems, certified to international standards ISO 9001:2000 and ISO 14001:1996 respectively. Our Laboratory holds IANZ accreditation to ISO 17025, a dedicated quality management standard for laboratories. Management systems are independently audited annually.

Financial performance

- Surplus ahead of budget by \$0.7 million
- Debt reduced by \$2.3 million
- Water levy held despite higher costs

Total operating costs (excluding asset write-down) decreased by \$232,000 compared with 2002/03. Rates, insurance and power showed marked increases, but were offset by lower financial, contractor and consultant costs.

An operating surplus of \$1.0 million was achieved. The surplus was \$0.7 million ahead of budget.

Debt was reduced by \$2.3 million during the year. Our debt now stands at \$45.8 million; it has been cut by \$26.8 million since 30 June 1997¹. Capital expenditure of \$27.2 million has been funded over the same period. Greater Wellington's Treasury Management Policy specifies that debt should not exceed 220 percent of the water levy: it is currently 200 percent, \$4.3 million less than our target maximum.

The bulk water levy was held at \$25.6 million (including GST). The levy for 2004/05 was set at the same level as for 2003/04 and the two previous years. Greater Wellington has held or cut the water levy in each of the past eight years; in actual dollars it has not been lower since 1992/93.

Comparison with Watercare Services shows that our total supply costs remain competitive. Watercare is the wholesale water supplier for greater Auckland. (See page 24, also QMS target 4.2.9, page 36.)

Revaluation of our water supply infrastructure assets was completed in May 2004. The revaluation was conducted in accordance with the New Zealand Infrastructure Asset Valuation and Depreciation Guide. Our infrastructure assets now have a book value of \$286 million, an increase of 18 percent from the last valuation in 1999. (QMS target 4.2.2, page 35)

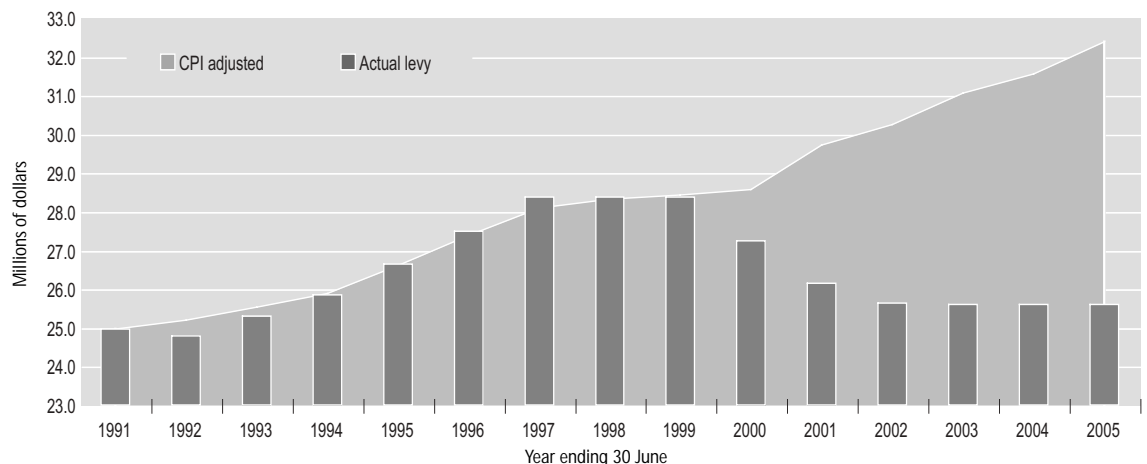
Environmental performance

- EMS certification maintained to ISO 14001
- Water-take within consented limits
- Production efficiency maintained
- Levels of chemical and energy use and treatment waste increased as a result of possum control work
- Discharges within consented limits

We are committed to operating in an environmentally responsible manner, consistent with the Resource Management Act 1991 (RMA), and provision of water at a reasonable price. The main impacts of our supply operation on natural and physical resources relate to water-take, energy and chemical use, discharges, and disposal of waste. We operate an EMS to instil focus and discipline around these activities.

Our EMS was awarded re-certification to ISO 14001:1996 in November 2003 following an independent audit. (QMS objective 7.1, page 37)

Water levy and inflation



The water levy for the year to 30 June 2005 has been set at just \$0.6 million more than the levy for the year to 30 June 1991, an increase of only 2.4 percent in 14 years. In comparison, cumulative inflation (CPI) for the period has amounted to 28.7 percent. (CPI figures are 12 months to 31 December - year to December 2004 estimated. Source Bancorp.)

¹ Prior to restructuring of Greater Wellington's water supply division.

Water-take (see also PIs, page 21)

Water-take was within consented limits. A difference of interpretation in regard to our water-take consent for Kaitoke was being discussed with the consent manager at year end. (EMS target 1.3.1, page 38)

Water-take totalled 58,239 million litres, 4.2 percent less than during 2002/03. Lower water-take was due mainly to lower demand during summer (see page 7).

Production of water-take was 95.8 percent efficient. Production efficiency reflects the proportion of metered water-take that can be accounted for by the metered volume of water treated, after allowing for the change in volume of raw water storage and discharge from storage back to the Hutt River.

The unaccounted-for water-take (UFW-T) was 4.2 percent of the total (5.9 percent including overflow from the Stuart Macaskill Lakes; prior to 2003/04 we did not have the means to isolate annual overflow volumes). The UFW-T results for the previous two years, including overflow volumes, were respectively 5.3 percent and 6.4 percent. (EMS target 4.1.1, page 40)

One of the Stuart Macaskill Lakes was drained to tackle a gradual build-up of algae. *Stichococcus Bacillaris* is non-toxic but was identified as causing the filters at Te Marua Water Treatment Plant to clog more quickly than usual. Discharge of the lake's contents to the Hutt River was managed to avoid environmental harm. The discharge is a permitted activity of our consent.

Monitoring results in relation to the consent conditions were provided to our consent manager. Once the lake was drained down, the algae and sediment on the lakebed were removed to a bunded enclosure for drying. This material is largely organic. We are investigating whether there is any commercial interest in recycling it in soil improvement products. (EMS target 3.2.3, page 39)

Resource use

Electricity use averaged 358.8 kilowatt-hours per million litres of water treated - 5.9 percent more than for 2002/03. The factors behind lower power use efficiency relative to 2002/03 were largely unavoidable without taking a less risk-averse approach to water quality and security of supply (see below and EMS target 4.2.1, page 40).

Electricity used for treating and supplying water to Wellington's four cities is equivalent to that used by 2,500 average households and represents about eight percent of total operating costs.

Roughly two-thirds of power use occurs at three sites: Waterloo Water Treatment Plant (about 40 percent of total kilowatt-hours), Waterloo Wellfield (11 percent) and Te Marua Pumping Station (16 percent). Power use efficiency – kilowatt hours per million litres treated (kWh/ML) – is therefore influenced largely by the share of total production 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.

For the year in review, production from Waterloo was 10 percent more than in 2002/03 (43.2 percent of total production compared with 38.2 percent for 2002/03). In addition, lake pumping increased 18 percent, from 10.5 percent of the total production volume in 2002/03 to 12.6 percent during 2003/04.

The increase in lake pumping resulted primarily from closure of the Hutt River intake between 28 July and 6 September to facilitate a possum control operation in the Hutt Water Collection Area.

All production from Te Marua during that 40-day period was from the Stuart Macaskill Lakes; the volume of water pumped during that time was 25 percent of the annual total for lake pumping. In addition, record rainfall during February frequently made the water in the Hutt River unsuitable to treat. Lake-stored water was used on 21 days during February.

Increased production from Waterloo was needed to make up for the closure of the Hutt River intake during August and an increased number of lost production days at the Wainuiomata Water Treatment Plant – mainly due to poor river conditions – (60 days during 2003/04 compared with 46 days in 2002/03).

From an environmental perspective, the merits of production from aquifers relative to rivers cannot easily be quantified. Aquifer water has a much higher direct power demand, for pumping. However, treating river water has a much higher chemical demand, which has associated impacts from chemical production and transportation. Treating river water also generates waste, which must be transported and disposed of. Given this uncertainty, our approach is to produce water at minimum marginal cost, subject to meeting our obligations under the RMA and taking a conservative approach to security of supply.

We deferred arranging a new electricity supply contract following increased government support for renewable energy. Last year we reported progress towards securing a long-term electricity supply contract with Genesis Power, linked to the expansion of its Hau Nui wind farm. Our supply contract then had more than two years left to run, but we saw an opportunity to demonstrate support for the early expansion of renewable energy generation capacity.

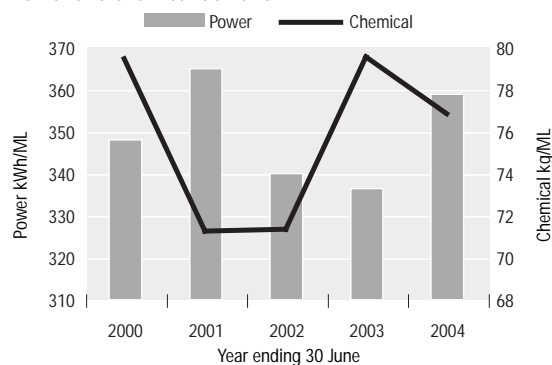
Since 30 June 2003, central government has offered carbon credits for new renewable generation capacity and several generators, including Genesis, have started to develop new wind farms, assisted by these credits.

Greater Wellington has also started to investigate the suitability of council-owned land for wind farm sites. Given the government's support for renewable energy - including securing the expansion of Hau Nui - and increasing competition in this sector of the market, we have decided to review our options closer to the expiry of our current supply contract in October 2005. (EMS target 4.2.3, page 40)

Chemical demand by volume of water treated was lower by 3.4 percent compared with 2002/03. Demand was just less than 77 kilograms per million litres (0.08 percent by weight). This reduction in chemical demand was primarily due to the increased share of total production from our Waterloo Water Treatment Plant, which draws water from the Waiwhetu aquifer. Water from the aquifer needs little chemical treatment.

There is natural variation in the quality of water taken direct from rivers and from our storage lakes, the latter being strongly influenced by the level of algal growth in the lakes. Chemical use efficiency was markedly lower in the first quarter of the year than for the following three operating quarters. The treatment of lake-stored water at Te Marua throughout August is likely to be the main factor behind this result.

Power and chemical demand



We have installed UV spectroanalysers to gain a better understanding of demand for coagulant chemicals. The spectroanalysers will provide data on the organic load in raw water entering our Te Marua and Wainuiomata Water Treatment Plants; organic load accounts for the majority of coagulant chemical demand. Colour monitors had previously been used to indicate the general level of organic content, but the results weren't a reliable guide to chemical demand, as some organic matter does not register on a colour monitor.

We are hopeful that this new equipment will over time provide a reliable measure for typical coagulant chemical use relative to raw water quality from river water sources across the range of raw water conditions.

Emissions and waste

Discharges from our system were in compliance with consent conditions. (EMS target 3.2.2, page 39)

Solid waste (sludge) by volume of river water treated increased by six percent over 2002/03.

Sludge represents about three-quarters of total waste by weight from our water treatment plants. Sludge by volume of production from river sources tends to increase when source water contains more organic solids: for instance, after rainfall in the water catchments. A total of 1,723 tonnes of de-watered waste sludge was sent to a consented landfill at Silverstream; 55 kilograms per million litres of river water treated. As for chemical use, sludge weight by volume of treated water was markedly higher during the first operating quarter of the year than for the remaining three quarters. Treatment of relatively high volumes of lake-stored water during the first quarter was significant to this result. (EMS target 3.2.3, page 39)

Land use and biodiversity

(EMS objective 5.1, page 41)

Greater Wellington 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 within the water catchments. Several indicators of forest health are monitored, including bird densities, pest animal numbers and vegetation density. Pest animal control operations are undertaken when needed.

Possum numbers were cut by an estimated 98 percent in the Hutt Water Collection Area. A possum control operation was carried out during July 2003. A post-operation trapping survey found less than one possum caught per night per 100 traps laid: a residual trap catch (RTC) of 0.5 percent. The pre-operation survey had yielded a trap catch rate of 23 percent. Bird density measurements showed no significant change resulting from use of 1080 for the operation. (QMS objective 5.1, page 36)

Further possum control work is needed in the Wainuiomata-Orongorongo Water Collection Area. Survey work during May 2004 found that possum numbers had reached a level that requires attention. Possum control was last undertaken in this catchment during 1999. Ideally the trap catch rate would be less than five percent: the survey found 16 percent RTC. Vegetation health monitoring data mirrored the build-up in possum numbers. A further operation will now be planned for 2005. (QMS objective 5.1, page 36)

Progress was made towards a permanent reduction in the numbers of pigs, goats and deer in the catchments. Professional hunters are routinely employed to control large pest animals. The use of electronically tagged 'Judas' goats to locate herds in the Wainuiomata-Orongorongo Water Collection Area has continued to show dividends. Since January 2001, 436 goats have been culled.

Our contractor has observed relatively few goats in the Wainuiomata River area recently. Increasing numbers of highly palatable plant species growing past browsing height supports that view. The new boundary fence (see below) is now helping to slow re-population.

A significant number of pigs are thought to be entering the western side of the catchment from Moores Valley. Hunting has kept numbers in balance and the population is expected to reduce once the fence has been extended along the Moores Valley boundary. (QMS objective 5.1, page 36)

The second stage of fencing the boundaries of the Wainuiomata Water Collection Area was completed. The fence now covers the entire northern boundary. Work will start on fencing the western boundary ridge above Moores Valley next year. The fence is designed to prevent infiltration of stock as well as wild deer, goats and pigs into the water collection area from adjoining private land. (QMS objective 5.2, page 36)

We are helping to create suitable conditions for a new area of wetland in Wainuiomata. In the past year we have been working with colleagues from the Landcare division of Greater Wellington to agree modifications to the original water supply dam at Wainuiomata that would also support the option of creating a wetland behind it. The dam, which is no longer in use, is situated within the Wainuiomata Recreation Area.

Supporting the creation of new wetlands contributes to Greater Wellington's long-term goal of greater biodiversity within our region. Developing a new wetland would also provide educational opportunities. Councillors have approved lowering the spillway of the dam and sealing the scours in the coming year. This work will remove the dangers associated with possible failure of the dam in an earthquake and create a small lake behind the dam, which could then be developed into a wetland. Other divisions of Greater Wellington will manage any future development of the wetland proposal. (EMS target 5.1.6, page 41)

Social performance

- Water supply quality target achieved
- Ministry of Health grading maintained for all treatment plants
- All demand for water was met
- 99 percent achievement of storage targets for customer reservoirs
- Distribution of treated water was over 99 percent efficient
- We hosted 1,300 visitors

Being committed to operating in a sustainable way requires that we recognise our potential to meet social needs within our 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 the professional development of our staff.

Our security of supply standard was achieved; all customer demand for water was met. (QMS objective 1.1, page 32)

Targets for maintaining levels in customer reservoirs were achieved in 99 percent of cases. Of 528 monthly records for customer reservoirs, 525 showed reservoirs at least 60 percent full for at least 90 percent of the time while 523 showed reservoirs at least 50 percent full for at least 98 percent of the time. (QMS target 1.2.1, page 33)

The total volume of water treated was 54,972 million litres: 2.4 percent less than in 2002/03. The total metered supply to customer reservoirs was two percent lower year on year, at 54,935 million litres. This volume is within a normal range for recent years (see page 27).

Distribution of treated water was over 99 percent efficient. The difference between the metered volumes of water treated and water supplied was 0.1 percent of the treated volume. This is less than the margin of error for our meters (+/- 1.0 percent). (EMS target 4.1.1, page 40)

Maximum day supply was 187 million litres, 25 percent higher than the average day of 150 million litres. The maximum day supply was considerably less than the maximum day from the past 10 years: 216 million litres.

The summer of 2003/04 was dominated by a very wet February, which resulted in low seasonal water use. Record high rainfall was recorded for the month at monitoring sites for our three surface water catchments and in central Wellington. Average daily water use usually peaks during February each year, but this year it was just 152 million litres; the median for February in the previous five years was 177 million litres: 16 percent higher. The volume of water supplied during February 2004 was the lowest since 1995, despite 2004 being a leap year.

A severe storm in mid-February proved challenging, but a useful test of our emergency response procedures. High river-flow on 15 and 16 February 2004 caused severe damage to a bridge on the access road to Wainuiomata Water Treatment Plant and washed away a section of our water main between the Wainuiomata River intake and the treatment plant. Flooding at Randwick Pumping Station triggered an automatic shutdown of our pumps for the Eastbourne supply and resulted in a delay of several hours before we could reach the pumps to inspect and restart them. A notice of potential water shortage in the Eastbourne bays area was issued by Hutt City Council after consultation with us, to conserve the water held in its service reservoir. There was no loss of supply to consumers.

We fully reviewed our response to February's flooding and have taken steps to improve operating procedures where necessary. The Eastbourne pumps housed at Randwick were known to be vulnerable to flooding and we had started planning for a new pumping station on higher ground at Point Howard prior to February's flood. This work will be completed in 2004/05.

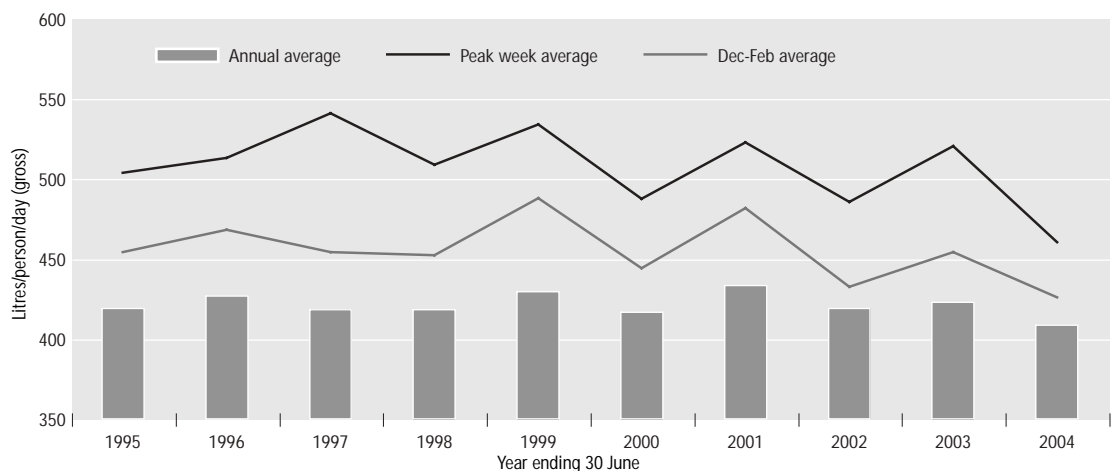
Total water supply volumes are gradually increasing, but water supply per resident is declining. Total water supply varies from year to year, depending primarily on weather conditions during summer and the resulting requirement for garden irrigation. Annual water supply volumes show a gradually increasing trend over the past decade, but at a slower rate than population growth.

Trends for water supply per resident² are slowly improving, particularly in relation to summer. Total supply per resident has reduced by an average of 0.3 percent annually over the 10 years to 30 June 2004. Supply during summer³ has reduced by an average of 0.5 percent annually over the same period, while supply during the peak week of summer has reduced by half as much again.

It is not possible to attribute the higher downward trends in peak and summer water use per resident directly to any single factor. However, the trends do coincide with a consistent focus on promoting efficient watering of gardens during the past decade.

New water management initiatives may have to be brought forward due to high population growth. Our current water supply assets are expected to meet the needs of a population of 377,000, at current levels of water use and restriction, in all but the driest conditions (those expected to occur only once in 50 years on average). Statistics New Zealand provides forecasts for high, medium and low population growth, projected from Census data. While medium is the most likely to occur, the high growth projection provides a more conservative basis for planning infrastructure development.

Water supply per resident



Water supply per resident shows a gradually decreasing trend during the last decade.

² Supply data for years ended 30 June divided by estimated usually resident population (urban areas) from Statistics New Zealand at the corresponding year end

³ 90 days from 1 December to 28 February

As recently as 1998, the high growth projection for the usually resident population in 2020 was 377,000, based on the 1996 Census. The 2001 Census found an unexpectedly large increase in population and annual estimates of the usually resident population have continued to increase at the 'high growth' forecast level. At 30 June 2003 Statistics New Zealand estimated the usually resident populations of Wellington, Porirua, Upper Hutt and Lower Hutt to be 363,400: an increase of 20,000 from the 2001 Census. The high growth projection for 2020 is now 400,000.

While continuing population growth at the high projection is not thought to be likely, it is possible that our security of supply standard may be exceeded as early as 2007 under the high growth scenario. This would result in small shortfalls in supply relative to demand on peak days during extremely dry years, rather than a large-scale shortage of water. We have informed our customers of this development and have opened discussions with them about water management options available to ensure that we continue to meet the reasonable needs of their communities. (QMS objective 1.1, page 32)

The potential for off-river storage at Wainuiomata to increase peak-day supply was investigated. The population growth described above has prompted a review of options for increasing water supply volumes. Consultants were engaged to investigate off-river storage in the vicinity of Wainuiomata Water Treatment Plant. Such storage would enable the plant to continue operating when its source rivers are very low, thus making better use of our existing water-take consents. Assessment of eight sites identified three preferred options, but no single site is large enough to provide a significant improvement in security of water supply during droughts. The results of this investigation will be considered alongside other options once the region's future demands for water are more clearly defined; a Regional Growth Strategy, which will indicate future water needs, is currently being developed jointly by the region's councils. (QMS target 1.1.2, page 32)

We have commissioned a climate-forecast model to quantify the risk of water shortages each summer. The regional bulk water supply system has relatively little storage capacity. It relies heavily on today's river flows being sufficient to meet today's water use. Regular rainfall is needed throughout the year to meet demand for water, which makes the system vulnerable to shortages arising from a summer drought.

We have engaged the National Institute of Water and Atmospheric Research (NIWA) to develop a model to give early warning of possible shortfalls of water. NIWA will translate three-month climate forecasts into a probability-based prediction of how much water will be available from our water supply rivers and whether that will be enough to meet demand.

While it is not possible to predict climatic conditions over three months with absolute accuracy, it does give a scientifically based approach to quantifying the risk of shortages. This is a first for New Zealand and will be refined with experience over several years. The model is expected to be ready for first use by December 2004. We anticipate using the output from the model to inform a stepped demand management programme of public information and, if needed, water use restrictions.

Work with the region's Lifelines organisations focused on increasing emergency water storage in communities. A large movement on the Wellington Earthquake Fault would be likely to cause extensive physical damage to our distribution system. Following such an event, the logistical challenges of access and availability of enough skilled workers and equipment to make critical repairs are expected to result in limited water supplies to some areas for several weeks.

Since 2001 we have been working with the region's emergency and utility service providers to improve co-ordination of mitigation and response plans for a major earthquake on the Wellington Fault.

The working group published an Emergency Water Supply Mitigation and Preparedness Strategy and Action Plan in September 2003. The plan calls for continuation of physical mitigation and response measures to reduce repair time for the bulk water supply. It also identifies the need for greater emphasis on enhancing local emergency water supplies, including emergency water held by key community facilities, households and businesses and water available in local reservoirs. It is estimated that few schools, rest homes or child care facilities and only 15-20 percent of households across the Wellington region have water stored for even the basic drinking water requirement: three litres per person per day for three days.

Since September 2003 the working group has developed a draft public education and information strategy and options for providing emergency water storage containers have been investigated. Some useful publicity about emergency storage was gained through participation in a public display about earthquakes held at Te Papa during Easter weekend. Looking forward, there is a need to co-ordinate public communication activity about emergency water storage with the wider initiatives of the region's Civil Defence and Emergency Management Group. This recommendation has been made.

We have continued to tackle the most earthquake-vulnerable aspects of the bulk water supply network. Investigations have progressed with Wellington City Council and Capital & Coast Health on a proposal for a new reservoir close to Wellington Hospital in southern Wellington. The reservoir would provide the hospital with more emergency water storage, while giving increased operating storage for both the city council and Greater Wellington. Technical investigation of two potential sites was well advanced by 30 June 2004.

We have relocated the Plimmerton and Pukerua Bay branch main at Paremata onto a new bridge across the Pauatahanui Inlet. The new bridge is expected to withstand movement arising from an earthquake better than the older bridge, so provides a more robust platform for the water main. The pipe sections on the new bridge also incorporate flexible joints to allow lengthways movement and reduce the risk of their failing.

Major seismic risk-reduction projects in progress at year end included planning and design work for realigning the Te Marua-Karori bulk supply pipeline away from an area prone to slips on Haywards Hill and moving Karori and Randwick Pumping Stations to lower-risk sites. These works should be completed by June 2005.

Our temporary public tap at Gear Island was superseded by a permanent facility. Hutt City Council opened a new purpose-built artesian water collection facility in Petone. This allowed us to close a temporary collection tap at Gear Island, in May 2004.

Water quality

Microbiological compliance was achieved. We complied with the Drinking-Water Standards for New Zealand (DWSNZ) 2000 for water leaving our treatment plants and in the bulk distribution system. (QMS targets 2.1.1 and 2.2.1, page 34)

Chemical compliance was achieved. We complied with DWSNZ 2000 for water leaving our treatment plants (QMS target 2.1.2, page 34)

Our QMS was upgraded. In December 2003 we received certification to ISO 9001:2000, a more customer-focused upgrade of ISO's quality management standard.

Ministry of Health (MoH) grading for each of our four treatment plants was maintained. The current grading for each plant is: Te Marua, 'A'; Wainuiomata, 'A1'; Waterloo, 'B'; and Gear Island, 'B'. In the past year it has become apparent that our objective to attain an 'A' grading for Gear Island Water Treatment Plant will be difficult to achieve, as increased monitoring has shown that we are unable to meet the turbidity aspect of the residual chlorine requirement in DWSNZ 2000. We are considering how this problem can be overcome, but no simple solution is apparent. (QMS objective 5.4, page 36)

We reported last year that changes to the Public Health Grading of Drinking Water Supplies were imminent. New grading rules were adopted late in 2003, with the most significant change for us being the introduction of grading criteria for bulk water distribution zones. Grading reflects compliance with the drinking water standards and the level of risk management and will now be assessed every calendar year. We expect that the MoH will publish its 2004 grading assessments, including a first assessment of the three zones in our distribution system, in 2005.

The MoH is developing changes to DWSNZ 2000. The 2000 edition of the standards was introduced at short notice late in 2000 and came into effect on 1 January 2001. The extent of changes from the 1995 edition resulted in it taking 15 months to make the necessary adjustments to our treatment processes and reporting systems in order to meet new compliance rules. Since then we have been working systematically towards complying with more stringent microbiological compliance rules to be introduced on 1 January 2005.

The current draft revisions of the standards would supersede the changes that were to be introduced in January 2005 and represent a significant shift in the methodology for assessing microbiological compliance. We have concerns about the detail of the proposed methodology on several levels and also remain concerned about how water aggressiveness will be dealt with. We have consulted with our customers on these matters and have been working as part of an Experts Committee convened by the MoH to convey our views to the Ministry. The consultation process was set to continue at 30 June 2004. We look forward to a clear, robust and workable revision of the current standards being released in due course and there being sufficient time between the new standards being released and coming into effect to make any necessary changes to our operations in order to comply. (QMS objectives 2.1, 2.2, 3.1, page 34-35)

Source water grading rules are under consideration. In parallel with the MoH revision of drinking water standards, the Ministry for the Environment (MfE) is working towards establishing a National Environmental Standard for Drinking Water Sources. The linkage between this proposed standard and the planned update of the drinking water standards is important, but was unclear to us by our year end.

(Subsequent to our year end, the MfE has decided to look at other ways of achieving its objective rather than through issuing a new standard).

We made some progress towards a service level agreement with our customers. At present we have no formal service level agreement with the four city councils that we supply with potable water. The worth of such an agreement is recognised by all parties and negotiations were ongoing at 30 June 2004. We hope to conclude an agreement in the coming year.

We provided assistance to tackle a *Cryptosporidium* outbreak in Masterton.

We moved quickly to help Masterton District Council when an outbreak of *Cryptosporidium* was detected at its Kaituna Water Treatment Plant in August 2003. Our production and asset managers provided risk assessment and quality management expertise as part of a technical advisory group of public health and water supply professionals. We also seconded water treatment and laboratory personnel to help cover the extra workload on Masterton's staff from conducting a full-scale investigation of the outbreak while continuing to treat and supply water to their community.

Progress was made towards securing a contract to manage water treatment for Masterton.

The current focus of central government on legislating for more comprehensive risk and quality management practices in water supply has inevitably raised concerns from smaller water providers about the increase in compliance costs that their communities would have to bear. Against this backdrop, we are working with Masterton District Council to conclude a contract to manage Kaituna Water Treatment Plant and the associated river intake and distribution pumping stations on its behalf. A management contract would allow Masterton District Council to utilise our expertise and the substantial investment in management and reporting systems that we have made over recent years. Negotiations were in progress at 30 June 2004.

The possibility of providing a supplementary water supply to Kapiti receded. Since 30 June 2003, Kapiti Coast District Council has opted to develop ground-water bores to address its summer water supply shortfalls.

Education and recreation

We hosted 1,300 visitors on educational tours of our facilities last year. Raising public awareness about the region's water supply system is necessary to foster more sustainable use of water resources: a goal at the heart of Greater Wellington's long-term plans. We welcome student and community groups to our treatment plants to demonstrate how water treatment and supply are managed and to raise public awareness about the value of water. The number of visitors was unchanged from 2002/03. The feedback we received was overwhelmingly positive.

Visitor numbers included some 500 people who visited Wainuiomata Water Treatment Plant as part of a guided walking programme in the Wainuiomata-Orongorongo Water Collection Area, managed by our colleagues from Landcare division. We continue to support carefully managed access to these water catchments, while ensuring that this activity does not compromise source water quality.

We are developing a resource for primary school teachers. The resource will link water study activities to the national curriculum, to encourage more school groups to study water and visit our treatment plants, as part of the learning outside the classroom component of the curriculum. At 30 June 2004 several schools were testing the resource. We anticipate launching it in the coming year.

For a fourth year we supported limited recreational hunting on water catchment land.

In each of the past four years a ballot system has been used to allocate 40 hunting permits for the Wainuiomata-Orongorongo Water Collection Area during the autumn 'Roar'. The ballot hunt is primarily offered to accommodate demand from recreational hunters, but also makes a modest contribution to our pest management activity within the catchments. As in previous years the 2004 ballot was oversubscribed, reflecting the popularity of this initiative. (QMS objective 5.1, page 36)

Health, safety and training

We see health and safety management as a crucial component of good business practice. Our health and safety plan details our commitment, through leadership, training and the allocation of resources. To support the principle of continual improvement, a major review of procedures is carried out at least every two years.

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

Incident and injury rates	2003/04	2002/03	2001/02
Staff numbers (year end)	58	56	56
Incidents (per 100 employees)	40.7	36.3	25.3
Frequency (Incidents per 10,000 hours worked)	2.2	2.1	1.3
Severity (Days lost per 10,000 hours worked)	1.20	5.23	0.92

We have collected data in this form for only four years, so have relatively little history with which to compare our latest results. While the number of reported incidents has increased for the second year running, the severity rate has dropped back markedly (the high severity rate in 2002/03 related to a single chronic back injury). Most incidents were fairly minor and related to cuts, bruises, strains and sprains that required little if any time off work. It is unclear whether reporting of minor incidents has gradually improved in recent years or whether more incidents are actually occurring.

Training and development of personnel is a key to facilitating continual improvement, which is a core principle of our quality, environmental and health and safety management systems.

The number of hours dedicated to staff training programmes was 2,477 or 44 hours per full-time employee (32 hours in 2002/03). Our records prior to 2002/03 are incomplete.

Direct expenditure on training and professional development for 2003/04 was two percent of total personnel costs, against a budget of 2.8 percent.

Detailed financial and water supply performance

Financial overview

The financial results for the reporting period ended 30 June 2004 are indicative of another year's solid operating performance. An operating surplus of \$1.0 million has been achieved for the financial year, \$0.7 million ahead of that budgeted, with all cash surpluses generated during the course of operational activities applied to accelerating the ongoing rate of debt principal repayment, as in previous years.

These results incorporate the decision taken in June 2003 to maintain the wholesale water levy at \$22.8 million for the 2003/04 financial year, in spite of the continued upward pressure on our key direct operating costs, such as power and chemicals. This decision ensured that the water levy has either remained unchanged or been reduced for seven successive years. In the meantime, the debt level has fallen by a further \$2.3 million since June 2003 and in total by \$26.8 million since June 1997.

Total operating expenditure increased by a further 3.7 percent, from \$22.0 million to \$22.8 million, compared with a 1.8 percent increase in 2002/03. Total contractor and consultant costs were, though, reduced by a further 21.1 percent compared with the previous year, whilst net financial costs also continue to fall as the ongoing debt level diminishes, being 5.1 percent lower than for the corresponding reporting period last year. However, these savings were completely absorbed by the 435 percent year-on-year increase in the annual obsolescence write-down of the water infrastructure asset value, which exceeded budget by \$0.8 million.

This significant write-down charge was associated with the revaluation of all water infrastructure assets, which is reflected in these finalised year-end accounts. This exercise was last performed in 1999 and involves assessment and revaluation of around 5,000 individual asset records. Consequently, a significant upward movement in the depreciated value of our water infrastructure assets has been recognised in the balance sheet: from \$242 million to \$286 million, an increase of approximately 18 percent.

The supply system again proved its reliability, comfortably meeting a lower annual level of demand, driven by a very wet summer and autumn. This translated into a 2.0 percent decrease in water supplied (54,935 million litres), compared with 2002/03 (56,050 million litres).

Finalised expenditure on the capital works programme amounted to \$3.8 million. This was \$1.3 million lower than budgeted, due to the deferral of three significant projects, valued at \$0.9 million, into the next financial year and savings of \$0.4 million arising from completed projects. The major projects by expenditure during the year centred on Wainuiomata Water Treatment Plant. The last remaining stretch of original Orongorongo to Karori pipeline supplying the plant with source water was replaced, as was the plant's control system software, while new telemetry was installed and the second stage of the Wainuiomata Water Collection Area boundary fence was completed. Elsewhere, a replacement aeration control panel was installed at Waterloo Water Treatment Plant and the Pukerua Bay branch pipeline was relocated onto the seismically more secure new Paremata bridge.

The information contained in the following eight pages details our financial results. Audit New Zealand has reviewed the financial information of Greater Wellington Water, a unit of Greater Wellington Regional Council. Audit New Zealand can provide assurance that the financial information has been correctly extracted from the financial systems of Greater Wellington Regional Council and provides a true and fair representation of the activities of Greater Wellington Water for the year ended 30 June 2004.

The table below summarises financial performance since 2000.

Financial summary

	June 2000	June 2001	June 2002	June 2003	June 2004
	Actual \$000	Actual \$000	Actual \$000	Actual \$000	Actual \$000
Operating revenue	26,206	25,252	24,437	24,003	23,844
Depreciation	5,009	5,117	5,320	5,347	5,352
Financial costs	5,399	4,943	4,497	3,794	3,674
All other operating expenditure	12,264	12,251	11,481	12,862	13,785
Surplus before abnormal items	3,534	2,941	3,139	2,001	1,033
Abnormal items					
Distribution stock write up	-	132	-	-	-
Petone de-fluoridation	-	205	-	-	-
Wainui pipeline easement revenue	-	-	500	-	-
Infrastructure asset w/o – 1999/2002	-	-	(307)	-	-
Operating surplus	3,534	3,278	3,332	2,001	1,033

Financial statements

Statement of financial performance

For the year ended 30 June

		2004	2004	2003
	Notes	Actual \$000	Budget \$000	Actual \$000
Operating revenue				
Water supply levies		22,776	22,776	22,776
Internal revenue		264	325	374
Other revenue (interest & external)		804	991	853
Total operating revenue		23,844	24,092	24,003
Operating expenditure				
Personnel costs		3,499	3,684	3,441
Contractor & consultant costs		1,038	1,332	1,316
Internal consultant costs	2	529	674	671
Interest costs		3,674	3,829	3,794
Depreciation		5,352	5,638	5,347
Loss / (gain) on sale		1,016	223	190
Movement in doubtful debt provision		(1)	-	(1)
GWRC overhead charge		892	892	816
Operating expenditure	3	6,812	7,485	6,428
Total operating expenditure		22,811	23,757	22,002
Net surplus for the year		1,033	335	2,001

Statement of movements in equity

For the year ended 30 June

	2004	2004	2003
	Actual \$000	Budget \$000	Actual \$000
Equity as at 1 July	204,088	204,088	202,087
Net surplus for the year	1,033	335	2,001
Total recognised revenues and expenses for the year	1,033	335	2,001
Revaluation reserve movement	51,721	-	-
Other reserve & equity movements	-	-	-
Equity as at 30 June	256,842	204,423	204,088

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

Statement of financial position

As at 30 June

		2004	2004	2003
	Notes	Actual \$'000	Budget \$'000	Actual \$'000
Equity				
Accumulated funds, including appropriations	4	70,038	69,340	68,315
Asset revaluation reserve		186,804	135,083	135,083
Departmental reserve	6	-	-	690
Total equity		256,842	204,423	204,088
Represented by:				
Non-current liabilities				
Public debt	7	45,759	48,640	48,106
Total non-current liabilities		45,759	48,640	48,106
Current liabilities				
Accounts payable		1,812	3,001	1,891
Employee entitlements		502	653	587
Treasury payables	5	1,748	37	1,582
Total current liabilities		4,062	3,691	4,060
Total liabilities		49,821	52,331	52,166
Non-current assets				
Fixed assets	8	295,743	246,320	246,366
Investments	9	6,856	6,780	5,828
Total non-current assets		302,599	253,100	252,194
Current assets				
Accounts receivable		2,525	2,151	2,616
Stocks	10	1,505	1,434	1,432
Accrued revenue		34	69	12
Total current assets		4,064	3,654	4,060
Total assets		306,663	256,754	256,254
Total net assets		256,842	204,423	204,088

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

Statement of funds

For the year ended 30 June

		2004	2004	2003
	Notes	Actual \$000	Budget \$000	Actual \$000
Funds from operating activities				
Funds were provided from:				
Levies received		22,776	22,776	22,776
Interest received		372	304	313
Other revenue		696	1,012	914
		23,844	24,092	24,003
Funds were applied to:				
Payments to suppliers and employees		12,769	14,067	12,671
Interest paid on public debt		3,674	3,829	3,794
		16,443	17,896	16,465
Net funds from operating activities	11	7,401	6,196	7,538
Funds from investing activities				
Funds were provided from:				
Proceeds from sale of fixed assets		20	61	46
		20	61	46
Funds were applied to:				
Purchase of fixed assets		144	404	273
Capital projects		3,902	5,111	2,365
		4,046	5,515	2,638
Net funds from investing activities		(4,026)	(5,454)	(2,592)
Funds from financing activities				
Funds were provided from:				
Appropriations / new loans		3,902	5,111	2,365
Transfer from reserves		690	690	145
		4,592	5,801	2,510
Funds were applied to:				
Repayment of public debt		6,249	4,884	6,500
Transfer to reserves		-	-	128
Investment additions		1,718	1,659	828
		7,967	6,543	7,456
Net funds from financing activities		(3,375)	(742)	(4,946)
Net increase in funds held		-	-	-
Add opening funds brought forward		-	-	-
Ending funds carried forward		-	-	-

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

Notes to the financial statements

For the year ended 30 June

1. Statement of accounting policies

A Reporting entity

Greater Wellington (GW) Water operates within the Utility Services division of Greater Wellington Regional Council. Its activities include the collection, treatment and distribution of potable water to four city councils: Hutt, Porirua, Upper Hutt and Wellington.

These financial statements exclude balances in respect of the forest investments managed by the Utility Services division.

B Measurement basis

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

C Particular accounting policies

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

Water supply levies

Levies represent charges to the four city council customers for the collection, treatment and distribution of potable water. Levies are recognised in the period to which they relate.

Fixed assets

Fixed assets consist of:

Operational assets - these include land, buildings, improvements, plant and equipment 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 assets are valued at historical cost, except for the following:

- a. Infrastructure assets have been valued at 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 each fixed asset to its estimated residual value over its useful life. 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.

Statement of funds

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

- a. For the purpose of the financial statements, cash is deemed to be the movement in Treasury payables & 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.

2. Internal consultant costs and revenue

Charges between departments of GW Water have been eliminated. These charges were \$2.6 million and \$2.3 million in 2003/04 and 2002/03, respectively. The reported internal consultant costs and revenue refers to charges to and from other Greater Wellington Regional Council divisions and the Plantation Forestry department of the Utility Services 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 funds, including appropriations

	2004	2003
	Actual \$000	Actual \$000
Balance at 1 July	68,315	66,297
Surplus for the year	1,033	2,001
Transfers to and from departmental reserves	690	17
Balance at 30 June	70,038	68,315

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 Treasury payables figure within the accounts as at 30 June.

6. Departmental reserve

	2004	2003
	Actual \$000	Actual \$000
Balance at 1 July	690	707
Transfer to reserves	-	128
Transfer from reserves	(690)	(145)
Balance at 30 June	-	690

The total departmental reserve at 30 June 2003 was made up of a chemical contingency reserve and a general reserve, both of which were wound up in 2003/04.

7. Long-term public debt

	2004	2003
	Actual \$000	Actual \$000
Balance at 1 July	48,106	52,241
New loans	3,902	2,365
Operating cash surplus applied to debt repayment	(6,249)	(6,500)
Balance at 30 June	45,759	48,106

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 2004 was 7.55% (7.74% to 30 June 2003). All operating cash surpluses are applied to the accelerated repayment of debt.

8. Fixed assets

2004	Deemed cost \$000	Revaluation reserve \$000	Accumulated depreciation \$000	Net book value \$000
Land	2,871	4,979	-	7,850
Water supply infrastructure	103,905	181,825	-	285,730
Office equipment	192	-	76	116
Plant & equipment	1,594	-	1,040	554
Motor vehicles	1,009	-	725	284
Work in progress	1,209	-	-	1,209
	110,780	186,804	1,841	295,743
2003	Deemed cost \$000	Revaluation reserve \$000	Accumulated depreciation \$000	Net book value \$000
Land	2,896	-	-	2,896
Water supply infrastructure	126,042	135,083	19,284	241,841
Office equipment	103	-	71	32
Plant & equipment	1,548	-	950	598
Motor vehicles	985	-	653	332
Work in progress	667	-	-	667
	132,241	135,083	20,958	246,366

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.

9. Investments

	2004	2003
	Actual \$000	Actual \$000
Chemical contingency	-	605
Insurance investment	6,856	5,138
General reserve	-	85
	6,856	5,828

The chemical contingency was established to cover the potential cost of additional chemicals, required as a result of an extreme event occurring within one of the surface water catchment areas. The insurance investment is held as self-insurance for the Stuart Macaskill Lakes (Te Marua) and pipe network.

The general reserve balance consisted of funds reallocated for use in 2003/04, being \$85,000 for the purchase of 1080-poisoned bait to be used in the Hutt Water Collection Area. The interest rate paid by Greater Wellington Regional Council Internal Treasury to GW Water for the year ended 30 June 2004 was 5.50% (7.75% to 30 June 2003).

10. Stocks

	2004	2003
	Actual	Actual
	\$000	\$000
Chemicals	109	111
Capital spares	1,396	1,321
	1,505	1,432

11. Reconciliation of funds from operations to operating surplus

	2004	2003
	Actual	Actual
	\$000	\$000
Reported surplus	1,033	2,001
Add / (less) non-cash items:		
Depreciation	5,352	5,347
Loss / (gain) on sale	1,016	190
Total non-cash items	6,368	5,537
Net cash flow from operating activities	7,401	7,538

12. 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 four city council customers.

Interest rate risk

Greater Wellington Regional Council Internal Treasury manages GW Water's debt. A fixed rate of interest is charged, 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 values of those investments.

13. 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.

14. Contingencies

GW Water had a single contingent liability of \$91,080 as at 30 June 2004, which materialised in August 2004 (nil at 30 June 2003).

15. 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 2004 GW Water had no other significant long-term contractual commitments, other than this office lease (nil at 30 June 2003).

Performance indicators

Performance indicators that applied during the 2003/04 operating year are shown in standard text. Results for 2003/04 in relation to the performance indicators are shown in italic text.

Quality: long-term

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

The water supplied from the water treatment plants will meet the Ministry of Health's Drinking-Water Standards 2005. These Standards are higher than the Standards introduced in January 2001.

All water that GW Water treats currently meets Ministry of Health Drinking-Water Standards. Greater Wellington Regional Council 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.

Waterloo and Gear Island Water Treatment Plants are graded 'B'. Waterloo would be upgraded to 'A' if chlorine were added to the treated water, although Hutt City Council requested that this not occur. A process for re-grading Gear Island to 'A' or 'A1' will be discussed with the Regional Health Service.

Wainuiomata Water Treatment Plant is graded 'A1'. Te Marua Water Treatment Plant is currently graded 'A'.

GW Water holds certification to ISO 9001:2000 for its wholesale water supply operations.

Quality: short-term

By 30 June 2004:

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 Drinking-Water Standards for New Zealand 2000.

Analysis of test results indicates ongoing compliance with the standards having occurred during the year. However there was one minor instance of technical non-compliance.

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 \$503,000.

Water testing was carried out by an IANZ registered laboratory to the required specifications. Expenditure for the year was \$502,500.

Ensure the grading of each of the water treatment plants at 1 July 2003 is at least maintained.

There has been no change to the grading of our treatment plants since 1 July 2003.

ISO 9002 will be replaced by ISO 9001:2000.

Certification to ISO 9001:2000 was achieved in September 2003. Confirmation was received in December 2003.

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

Greater Wellington Parks and Forests provided an agreed level of service. Expenditure for the year was \$148,097.

Provided legislation is passed by 30 June 2004, five public health risk management plans will be prepared.

The legislation has not yet been introduced to Parliament. Work is on hold in the meantime.

A ranger service for Greater Wellington's Wainuiomata-Orongorongo Water Collection Area will be obtained from the Landcare division at a cost not exceeding \$121,000.

Greater Wellington Parks and Forests provided an agreed level of service. Expenditure for the year was \$114,933.

Security of supply: long-term

Sufficient water will be available on a daily basis to meet the 1-in-50-year return period drought situation. The related water supply infrastructure will be maintained and improved to meet the standards specified in the Regional Water Supply Asset Management Plan.

In the event of a major emergency, appropriate contingency plans will be in place.

Projections using a computer-based sustainable yield model show that Greater Wellington Regional Council's water supply infrastructure is sufficient to meet a 1-in-50-year return period event until about 2020, at current growth rates. A 1-in-50-year drought strategy has been adopted after consultation with our customers. This is less than that of Auckland's 1-in-200-year strategy, although Auckland's system is less dynamic in its raw water supply.

GW Water manages water supply assets in accordance with a planned programme of maintenance. 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 a '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.

Security of supply: short-term

By 30 June 2004:

The Kaitoke intake will be refurbished to accepted engineering standards at a cost not exceeding \$200,000.

Inspection has shown that the required refurbishment is less than anticipated. However, high summer river flows prevented work commencing and it is likely that the work will be completed in the next financial year. Preliminary expenditure of \$6,505 was incurred during this financial year.

The OK main from Tunnel No. 2 to the Wainuiomata Water Treatment Plant will be replaced within a budget of \$1,250,000.

The work was completed at a cost of \$1,174,000.

Rebuilding the Karori Pumping Station will be started at an estimated total project cost of \$1,300,000. It is due for completion in 2004/05.

Some difficulties have been experienced in obtaining a suitable site and as at year end, physical work had not started. Expenditure for the year was \$181,391.

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 (the International Standards Organisation's environmental management benchmark) for its wholesale water supply activities.

Environmental management: short-term

By 30 June 2004:

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

Annual consent charges for 2003/04 were \$48,961. There have been no significant breaches of the consents during the period.

Resource consent compliance will be demonstrated to an auditable standard and a report on compliance for 2002/03 will be prepared by 30 November 2003.

The report was published by 30 November 2003.

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 and Amendments, 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 2004:

The hazard register will be reviewed on a six-monthly basis. We will assess the effectiveness of the measures taken to eliminate, isolate or minimise risk to all GW Water employees and contractors.

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 and Amendments, Health and Safety Regulations 1995, relevant Codes of Practice and current legislation, and meet or exceed the methods of operation as determined within the Utility Services (Water) division'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.

Hazard registers are reviewed on an ongoing basis by the works supervisors. The health and safety plans of contractors continue to be reviewed prior to engagement.

The methods used for measuring performance include the completion of check sheets, ensuring that action plans and hazard identification assessments are completed and formally addressing all complaints and concerns received immediately.

The methods used to minimise the occurrence of such incidents are: ensuring that all contractors have been inducted at every site, continually using preferred contractors, updating contractors with each amendment to our procedures and actively encouraging contractors' participation in health and safety development.

Seven contractors carried out a total of 427 physical works for our Operations section during 2003/04. Of this work, 99.7 percent was completed in compliance with our health and safety and environmental procedures. A lime spill occurred at Wainuiomata Water Treatment Plant during delivery as a result of the truck driver not following procedures; the contractor is no longer permitted to use this driver for deliveries to any of GW Water sites. A second incident, a near miss, resulted from careless driving. The contractor's staff member involved in the incident has now completed a defensive driving course.

Customer service: long-term

GW Water will continue to demonstrate that it has a high standard of customer service. It will provide customers with up-to-date and relevant information, as well as listening and responding to their needs.

GW Water maintains regular communication with customer organisations at various levels of seniority.

Customer service: short-term

By 30 June 2004:

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

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

The business report was published in November 2003. It included content on all of the above subjects.

Business efficiency: long-term

To demonstrate a reduction in real direct operating costs over time while maintaining levels of service.

The annual cost of running GW Water, excluding changes in depreciation rates, has reduced \$5.1 million or 23 percent between 1997 and 2004, whilst service levels were maintained throughout this period.

Business efficiency: short-term

By 30 June 2004:

Total operating expenditure, excluding depreciation, will not exceed \$20,465,000.

Year-to-date expenditure of \$20,075,000 was incurred during the financial year. Activities were carried out according to requirements.

The revenue from the water levy will not exceed \$22,777,000.

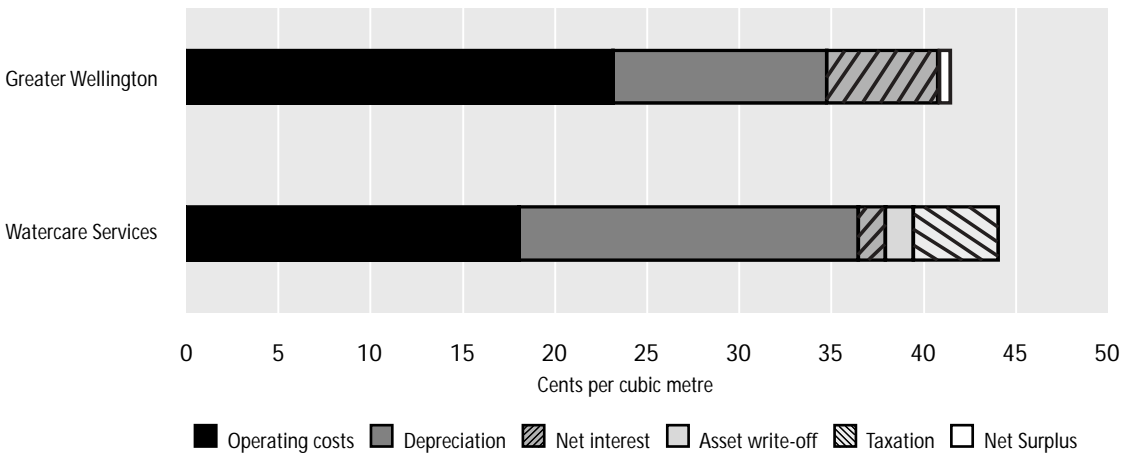
Revenue of \$22,776,473 was received during the financial year.

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. Please note that the costs shown for GW Water, including the surplus equivalent to 0.6 cents per cubic metre of water supplied, add to equal the water levy paid by our four city council customers. Watercare posted a deficit equivalent to 1.1 cents per cubic metre of water supplied.

Potable water supply costs

For the year ended 30 June 2004



Water quality

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 monitoring of potable water is carried out in order to ensure that waterborne disease is not transmitted. *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 that 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 *E.coli* criteria of the Drinking-Water Standards for New Zealand (DWSNZ) 2000 is demonstrated by continuously monitoring free available chlorine (FAC) and pH in drinking water leaving the treatment plants. The FAC concentration must not fall below a concentration that is equivalent to a minimum of 0.2 mg/L of FAC at pH 8.0 and turbidity less than 0.5 NTU. Turbidity is continuously monitored on each filter to ensure that *Cryptosporidium* oocysts or *Giardia* cysts do not pass through the treatment plants. Turbidity should not exceed 0.5 NTU for more than five percent of any 24-hour period, or ever increase by more than 0.2 NTU in any 10-minute period.

The Waiwhetu aquifer is a secure water source and by definition free from microbiological contamination. Nonetheless, water leaving our aquifer source water treatment plants (Waterloo and Gear Island) is tested to demonstrate compliance with the *E.coli* criteria of DWSNZ. No *E.coli* was detected in daily testing of water leaving Waterloo Water Treatment Plant, or in water leaving Gear Island Water Treatment Plant.

The Ministry of Health assesses microbiological compliance with DWSNZ annually, on a calendar year basis. Te Marua, Wainuiomata, Waterloo and Gear Island Water Treatment Plants received microbiological compliance for the year to 31 December 2003.

The following tables show a summary of the percentage of time that Te Marua and Wainuiomata Water Treatment Plants met the compliance criteria for turbidity (for each filter) and FAC/pH (for treated water) for the 2004 compliance year to date (January-June).

Turbidity (NTU) and FAC/pH compliance

For the 2004 compliance year to date (1 January to 30 June 2004)

Both Te Marua and Wainuiomata Water Treatment Plants comfortably bettered the 0.5 NTU compliance rule (<0.5 NTU at least 95% of the time) and met the 'rate of change' rule (<0.2 NTU in any 10 minute period 100% of the time), as the following table shows:

		Te Marua		Wainuiomata	
		Jan-Mar	Apr-Jun	Jan-Mar	Apr-Jun
Filter 1	<0.5 NTU	100.00%	100.00%	100.00%	100.00%
	<0.2 NTU change	100.00%	100.00%	100.00%	100.00%
Filter 2	<0.5 NTU	100.00%	100.00%	100.00%	100.00%
	<0.2 NTU change	100.00%	100.00%	100.00%	100.00%
Filter 3	<0.5 NTU	100.00%	100.00%	100.00%	100.00%
	<0.2 NTU change	100.00%	100.00%	100.00%	100.00%
Filter 4	<0.5 NTU	100.00%	100.00%	100.00%	100.00%
	<0.2 NTU change	100.00%	100.00%	100.00%	100.00%
Filter 5	<0.5 NTU	100.00%	100.00%	100.00%	98.99%
	<0.2 NTU change	100.00%	100.00%	100.00%	100.00%
Filter 6	<0.5 NTU	100.00%	100.00%	Not applicable	Not applicable
	<0.2 NTU change	100.00%	100.00%	Not applicable	Not applicable
Treated	FAC-pH	100.00%	100.00%	100.00%	100.00%

Distribution

Although not presently required under DWSNZ, Greater Wellington Regional Council's Laboratory monitors the microbiological quality of water in our distribution system after treatment. *E.coli* sampling is used, in accordance with the requirements of the Drinking-Water Standards for sampling urban reticulation systems.

Our distribution system is listed in the Register of Community Drinking Water Supplies in New Zealand. The system is split into three distinct zones, with each having its own sampling requirements based on population served. Samples must be taken on different days of the week and from sites that represent the full range of conditions that exist within a distribution zone.

The three zones are (1) Central Hutt/Petone (unchlorinated supply from Waterloo Water Treatment Plant), (2) Wainuiomata/South Wellington (supply from Wainuiomata and Waterloo Water Treatment Plants) 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 2003 to 30 June 2004 is given below.

E.coli results – summary of samples collected

For the year ended 30 June 2004

Distribution zone	DWSNZ MAV ^(D)	No. of samples	No. of positive results
Central Hutt/Petone	<1	338	0
Wainuiomata/South Wellington	<1	358	0
Upper Hutt/Porirua/North Wellington	<1	357	0

(D) Drinking Water Standards for New Zealand 2000, maximum allowable value (MAV).

Chemical monitoring of the wholesale water supply

The health risk due to toxic chemicals in drinking water differs from 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 DWSNZ 2000.

Mean values of chemical analysis at treatment plants

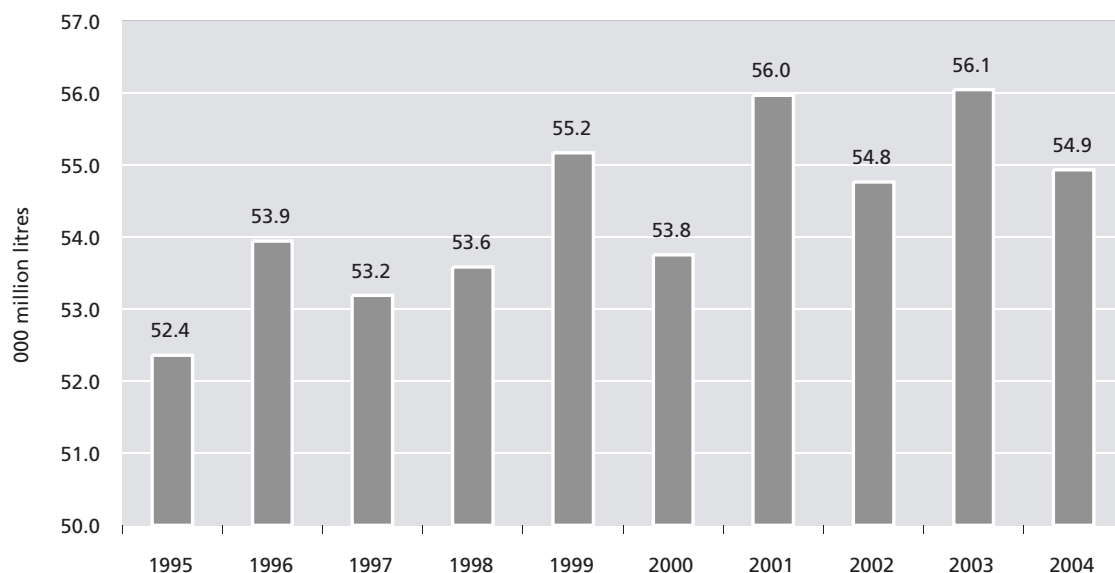
For the year ended 30 June 2004

Parameter	DWSNZ 2000	Te Marua		Wainuiomata		Waterloo		Gear Island	
	GV or MAV ^(A)	No. of samples	Value	No. of samples	Value	No. of samples	Value	No. of samples	Value
Alkalinity (total), mg/L CaCO ₃	-	250	46	49	48	53	64	22	69
Aluminium (acid soluble), mg/L	0.15	12	<0.02	11	0.03	-	-	-	-
Arsenic (total), mg/L	0.01	2	<0.001	2	<0.001	4	<0.001	4	<0.001
Boron, mg/L	1.4	2	0.012	2	0.019	3	0.026	3	0.025
Cadmium (total), mg/L	0.003	2	<0.00005	2	<0.00005	4	<0.00005	4	<0.00005
Calcium (total), mg/L	(B)	4	13	4	22	4	22	4	9.6
Chloride, mg/L	250	4	8.0	3	24	4	14	4	15
Chromium (total), mg/L	0.05	2	<0.0005	2	<0.0005	4	<0.0005	4	<0.0005
Colour (true), PtCo units	10	53	<5	49	<5	-	-	-	-
Conductivity, µS/cm @ 25°C	-	12	140	10	191	12	192	9	209
Copper (total), mg/L	1	12	0.26	11	<0.02	11	<0.02	9	<0.02
Cyanide (total), mg/L	0.08	2	<0.008	2	<0.008	4	<0.008	4	<0.008
Fluoride, mg/L	1.5 ^(C)	251	0.83	231	0.83	502	0.90	248	0.86
Hardness (total), mg/L CaCO ₃	200	12	38	11	61	12	67	9	41
Iron (total), mg/L	0.2	12	<0.05	11	0.04	12	0.08	9	0.12
Langelier saturation index	≥0	12	-1.1	11	-1.1	12	-0.8	9	-1.2
Lead (total), mg/L	0.01	2	0.0010	2	<0.0001	4	<0.0001	4	0.0001
Magnesium (total), mg/L	(B)	2	1.2	2	2.0	4	2.8	4	4.1
Manganese (total), mg/L	0.5	12	<0.05	11	<0.05	11	<0.05	9	<0.05
Mercury (total), mg/L	0.002	2	<0.00008	2	<0.00008	4	<0.00008	4	<0.00008
Nickel (total), mg/L	0.02	2	<0.0005	2	<0.0005	4	<0.0005	4	<0.0005
Nitrate, mg/L -N	50	2	0.03	1	0.04	4	0.71	4	1.1
pH	7.0-8.5	250	7.8	49	7.7	53	7.8	26	7.6
Selenium (total), mg/L	0.01	2	<0.001	2	<0.001	4	<0.001	4	<0.001
Silica (molybdate-reactive), mg/L	-	2	9.4	1	13	4	16	3	17
Sodium (total), mg/L	200	4	14	4	14	4	12	4	28
Solids (total dissolved), mg/L	1000	12	91	10	120	12	120	9	130
Sulphate, mg/L	250	4	8.2	3	5.0	4	5.9	4	7.1
Turbidity, NTU	2.5	53	0.17	49	0.34	53	0.58	-	-
Zinc (total), mg/L	3	12	0.07	11	<0.05	11	<0.05	9	<0.05

Notes: (A) Drinking Water Standards for New Zealand 2000, 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. (B) See hardness. (C) The fluoride content recommended for drinking water by the Ministry of Health for oral health is 0.7 to 1.0 mg/L.

Water supplied to customers

Water supply figures are recorded weekly at the supply points to our customers. The annual totals have been calculated to represent 365/366 day years, so as to make the 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
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
% change	-5.2%		-3.7%		-0.1%		-0.4%		-2.0%	
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
1997	14,310	39.2	5,138	14.1	5,167	14.2	28,571	78.3	53,186	145.7
1996	14,398	39.3	5,096	13.9	5,064	13.8	29,383	80.3	53,941	147.4
1995	14,537	39.8	5,333	14.6	4,817	13.2	27,668	75.0	52,354	143.4

Average daily supply (litres)

For the year ended 30 June 2004

	Hutt City	Porirua City	Upper Hutt City	Wellington City	Total
Population ¹	99,500	50,200	35,700	178,000	363,400
Households ²	34,659	14,925	13,236	62,733	125,553
Gross litres/head/day	383	322	405	457	413
Gross litres/household/day	1,100	1,081	1,093	1,297	1,195

1: Usually resident population - estimated at 30 June 2003 based on 2001 Census

2: Occupied dwellings - 2001 Census

Supply – maximum week (millions of litres)

For the year ended 30 June

	Hutt City	Porirua City	Upper Hutt City	Wellington City	Total
Maximum week 2004	24/12/03	24/12/03	7/1/04	24/12/03	24/12/03
Total of max. week					
2004	302.9	134.3	125.2	630.9	1,184.1
2003	349.6	147.4	128.2	699.7	1,323.4
% change	-13.4%	-8.9%	-2.3%	-9.8%	-10.5%
Avg. day of max. week					
2004	43.3	19.2	17.9	90.1	169.2
2003	49.9	21.1	18.3	100.0	189.1

Distribution shutdowns

In the year ended 30 June 2004 there were 64 shutdowns on GW Water's regional water supply mains (2003 = 68): no loss of pressure or supply to customers resulted.

Nineteen shutdowns were unscheduled, for the repair of leaking or burst mains, or to repack leaking valves, compared with 21, 16, 17 and 33 in the four prior financial years (2003, 2002, 2001 and 2000 respectively). All the shutdowns during the year ended 30 June 2004 were completed and the water supply reinstated within eight hours.

The remaining 45 shutdowns were scheduled (2003 = 47). This work was required to install new or refurbished pipes and valves (18), remove redundant distribution assets (2), mitigate the risk to third parties working in close proximity to our high-pressure mains (1) and for planned maintenance (24). All scheduled shutdowns were completed and the supply reinstated within eight hours.

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	
	2004	2003	2004	2004	2003	2004	2004	2003	2004	2004	2003
River and stream abstraction											
Kaitoke/Te Marua	26,018	29,191	44.7%	71.1	80.0	29/10/03	124.4	121.3	9/5/04	143.5	134.0
Wainuiomata	5,709	5,352	9.8%	15.6	14.7	21/1/04	27.4	28.8	12/2/04	37.9	33.6
Orongorongo	909	2,537	1.6%	2.5	7.0	6/8/03	11.5	21.2	8/10/03	18.4	24.6
George Creek	1,120	1,159	1.9%	3.1	3.2	10/3/04	8.6	10.0	28/2/04	15.4	10.6
Big Huia Creek	742	1,045	1.3%	2.0	2.9	2/6/04	5.7	7.2	1/3/04	7.9	9.2
Total - rivers	34,497	39,284	59.2%	94.3	107.6	22/10/03	153.3	154.2	24/6/04	174.6	180.0
Public artesian abstraction											
Waterloo	23,508	21,327	40.4%	64.2	58.4	12/5/04	81.6	91.5	9/11/03	94.9	101.8
Gear Island	234	206	0.4%	0.6	0.6	27/8/03	4.4	4.3	9/7/03	22.3	16.3
Total - artesian	23,742	21,534	40.8%	64.9	59.0	12/5/04	81.6	94.8	27/8/03	103.2	111.2
Total public abstraction	58,239	60,818	100.0%	159.1	161.1	12/11/03	212.6	216.0	6/11/03	233.4	233.4

Totals may not add exactly due to rounding

Rainfall levels

For the year ended 30 June

	Kaitoke ¹	Karori ²	Orongorongo ³	Wainuiomata ⁴
2004	2,759	1,532	3,911	2,318
2003	1,812	947	2,747	1,577
Mean of data record	2,219	1,239	2,573	1,929
2004:mean	124%	124%	152%	120%

1: Kaitoke Headworks rain gauge (note that data from Phillips rain gauge is no longer available)

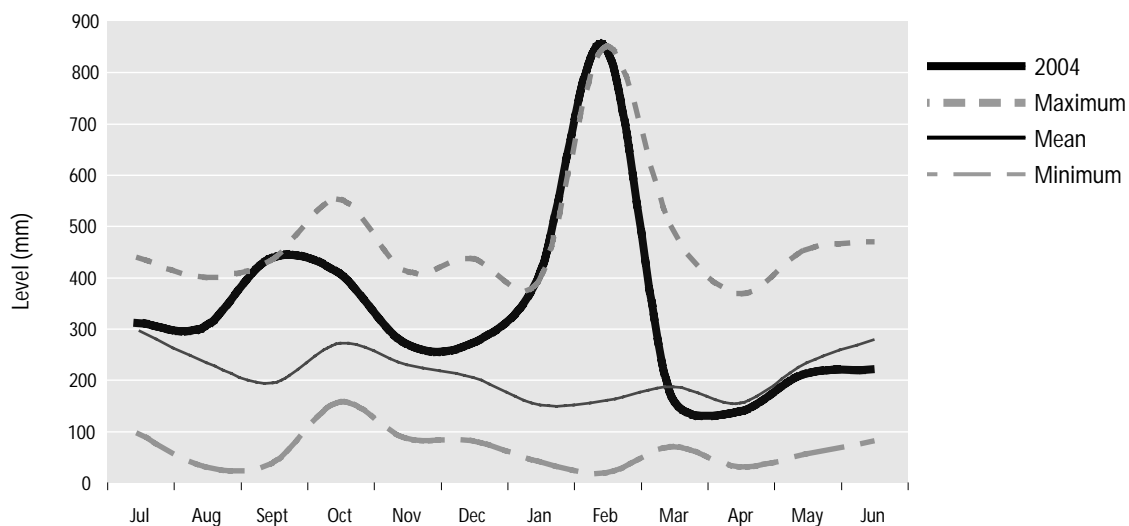
2: Karori Sanctuary rain gauge (missing data from July, Aug, Dec, Jan. 2002/03 estimated, based on readings at Kelburn)

3: Orongorongo Swamp rain gauge.

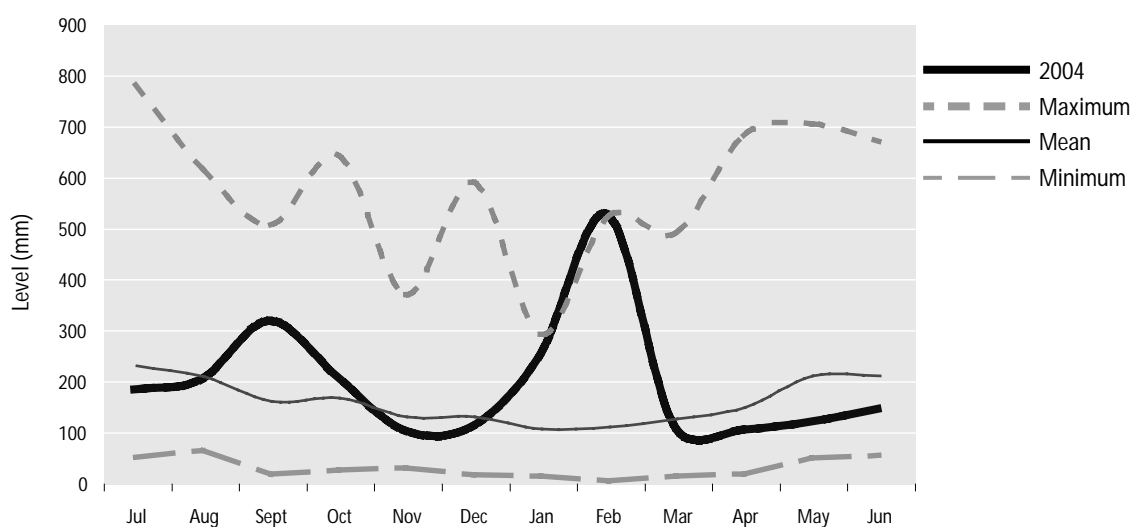
4: Wainuiomata Reservoir rain gauge.

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

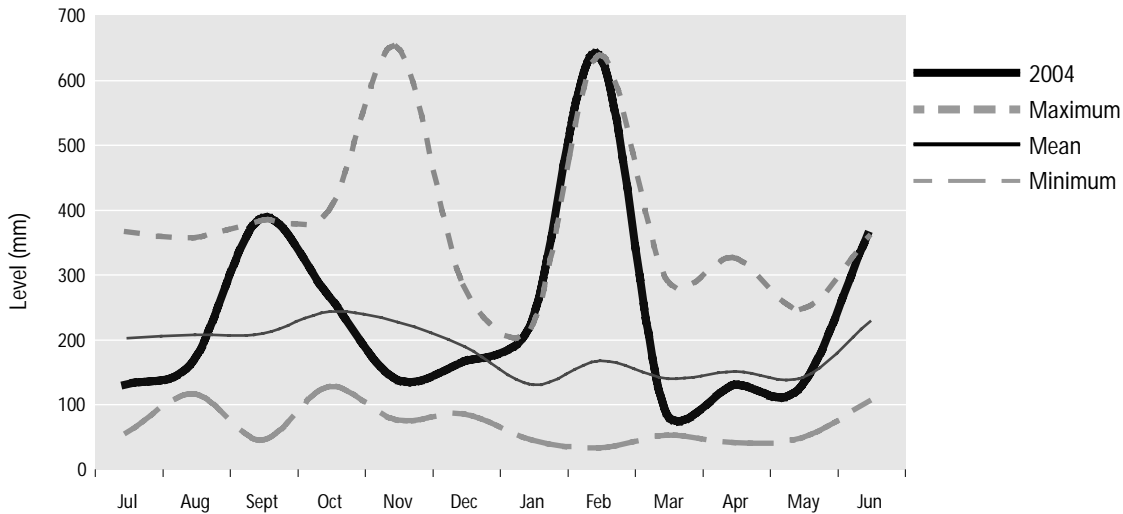
Orongorongo catchment rainfall (record 1980 – 2004)



Wainuiomata catchment rainfall (record 1890 – 2004)



Hutt catchment rainfall (record 1890 – 2004)

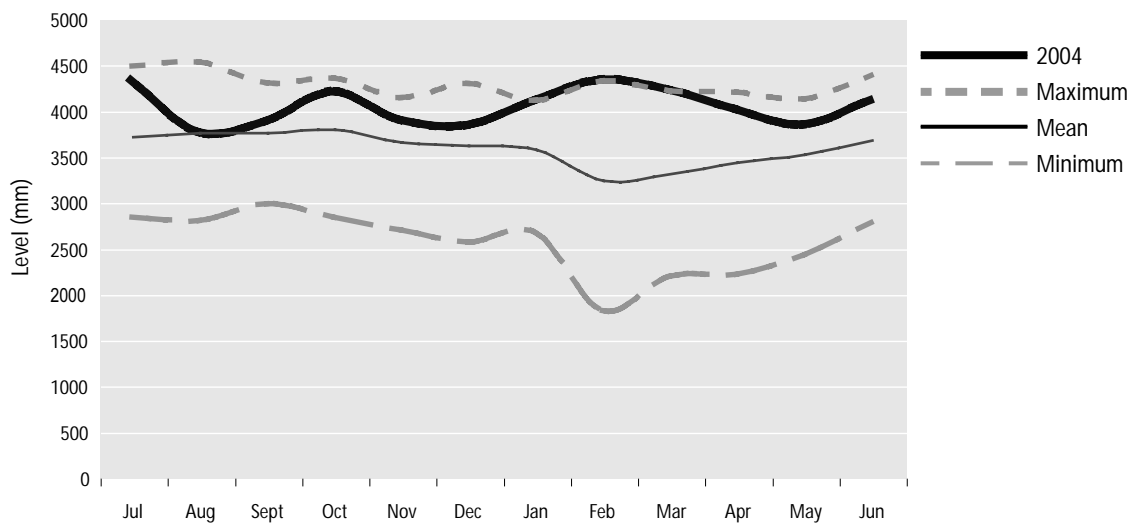


Levels and flows from water sources

The following three graphs show the historical high, low and average from the main water sources used to supply the Wellington metropolitan area, compared with data for the 12 months to 30 June 2002.

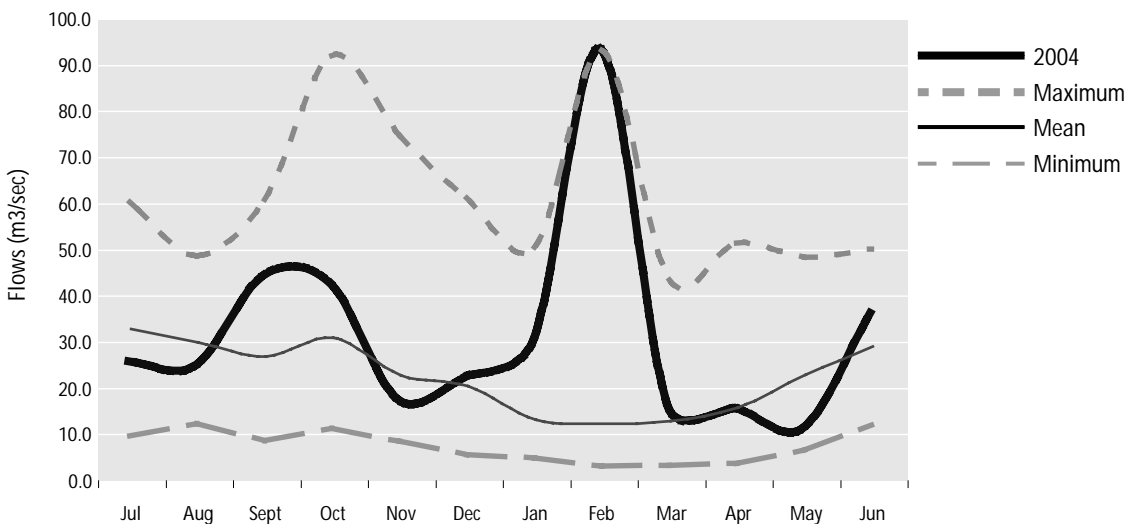
Waiwhetu aquifer (record 1971 – 2004)

Average monthly level for the year ended 30 June



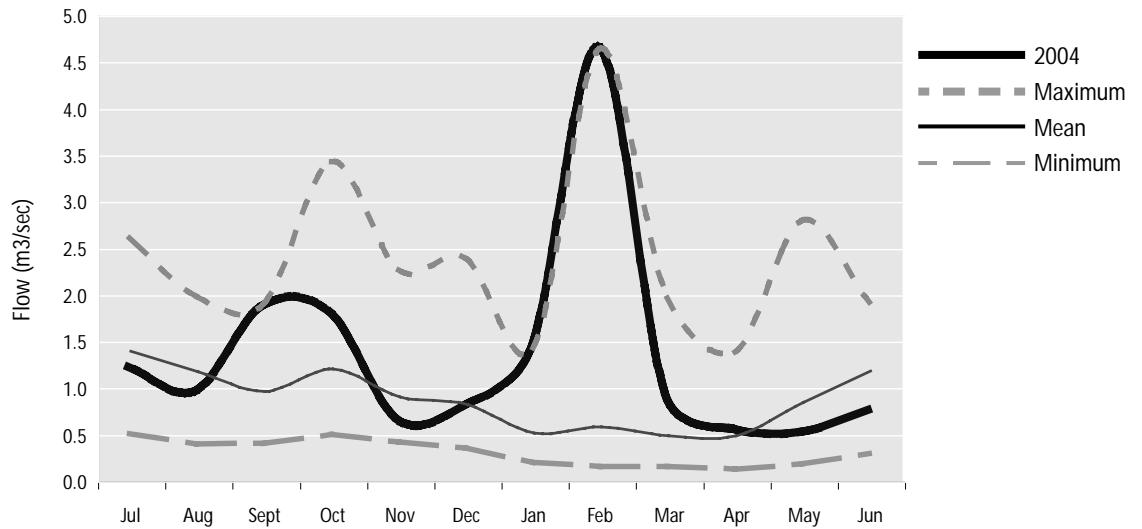
Hutt River (record 1970 – 2004)

Average monthly flow rate for the year ended 30 June



Wainuiomata River (record 1982 – 2004)

Average monthly flow rate for the year ended 30 June



Resource consents

Resource consents held as at 30 June 2004

Water-take	Land use	Discharge	Total
11	40	20	71

During the year ended 30 June we complied with all consent conditions apart from the following. We received a 'mostly complying' assessment for discharge from Wainuiomata Water Treatment Plant, due to the late delivery (11 days) of one monthly report to the consent manager. We received a 'non complying' assessment for water take from Kaitoke, due to the minimum residual flow being diverted through the weir scours rather than flowing over the top of the weir. This action did not affect the volume of water allowed to flow past the weir and we have therefore sought a reassessment of compliance from the consent manager.

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 2003/04 financial year, and (2) additional background information where needed

	Targets	Achievement 2003/04	Comment
Objective 1.1	Provide sufficient water to meet the unrestricted (other than by routine watering bylaws) demand in all but a drought situation that has a severity equal to or greater than a 1-in-50-year return period		
Target 1.1.1	Develop new sources, as needed, so that enough water is available to meet the unrestricted (other than routine watering bylaws) demand in all but a drought situation that has a severity equal to or greater than a 1-in-50-year drought	No new water sources developed All demand met without restrictions	Greater Wellington 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 could be reached as soon as 2007, rather than by 2020 as previously reported. Growth in the base level (winter) demand is small (1% to 2%) but the margin of water reserve is also relatively small. A combination of unfavourable circumstances could lead to a shortage of water. The assumptions implicit in the SYM for production from Te Marua Water Treatment Plant have yet to be fully proven and work is proceeding on this. Options for increasing source water volumes will be investigated during 2004/05.
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.	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. The supply infrastructure was not extended, but various seismic strength improvement projects were progressed (see also target 1.1.1 above)

	Targets	Achievement 2003/04	Comment
Objective 1.2	Maintain the customers' service reservoirs above agreed minimum levels		
Target 1.2.1	For each customer service reservoir supplied directly by GW Water, maintain reservoirs at least 50% full for 98% of the time and at least 60% full for 90% of the time. (Assessed by interrogating reservoir level data recorded at 15-minute intervals. Compliance is assessed by month for 44 reservoirs. 44 x 12 = 528 reservoir-months)	50% full target met for 523 of 528 reservoir-months 60% full target met for 525 of 528 reservoir-months	<p>The 50% target was not reached for 12 reservoir-months in total. However, seven of these events were due to reservoirs being emptied by the customer for maintenance/improvement work. Of the remaining five events, three were due to telemetry failure (Kingsley, Haywards, Grenada South), one to valve failure (Ngaio) and one as a result of February's flood event (Moores Valley).</p> <p>The 60% target was not reached for five reservoir-months in total. However, two of these events were due to reservoirs being emptied by the customer for maintenance. Of the remaining three events, one was due to valve failure (Ngaio), one to the reservoir filling set point being too low (Trentham) and one as a result of February's flood event (Moores Valley).</p> <p>Customers' needs for reservoir levels will form part of a bulk water supply service level agreement, currently under discussion. This target will be modified if necessary once service levels are agreed.</p>
Objective 1.3	Maintain system pressure above agreed minimum levels		
Target 1.3.1	Maintain wholesale water supply pressure into the Thorndon Zone above 85m for 90% of the time and above 80m and below 100m for 98% of the time (assessed by interrogating pressure data recorded at 15-minute intervals)	Above 85m pressure target met Above 80m and below 100m pressure target met	<p>Thorndon Zone pressure above 85m for at least 93.6% of the time for each month (range = 93.6% to 99.3%) based on available data (see below).</p> <p>Thorndon Zone pressure above 80m and below 100m for at least 99.9% of the time for each month (range = 99.9% to 100.0%) based on available data (see below).</p> <p>Our telemetry link between Thorndon and Gear Island failed on 8 March 2004 and was not reinstated until 6 May 2004. The above results exclude this missing data. Pressure at Kaiwharawhara was used to estimate Thorndon Zone pressure while the link was down; this data together with feedback from WCC/Capacity indicates that zone pressure was maintained within the targeted performance range.</p> <p>Supply pressure in Thorndon Zone will form part of a proposed wholesale water supply service level agreement, currently under discussion. This target will be updated once customer requirements have been agreed.</p>

	Targets	Achievement 2003/04	Comment
Objective 2.1	Comply with the microbiological, chemical and aesthetic requirements of the Drinking-Water Standards for New Zealand (DWSNZ) 2000, for water leaving the treatment plants		
Target 2.1.1	Comply 100% of the time with microbiological requirements of DWSNZ 2000 for water leaving GW Water's treatment plants	Fully complying	Compliance with DWSNZ is assessed on a calendar-year basis. Microbiological compliance was certified by Hutt Valley District Health Board's (HVDHB) Regional Public Health section for 2003 for our four water treatment plants. Data for Jan-June 2004 shows full compliance.
Target 2.1.2	Comply 95% of the time with chemical [P2] requirements of DWSNZ 2000 for water leaving GW Water's treatment plants	Fully complying	Compliance with DWSNZ is assessed on a calendar-year basis. Chemical [P2] compliance was received for our four water treatment plants. Data for Jan-June 2004 shows full compliance.
Target 2.1.3	Comply 90% of the time with the aesthetic requirements of DWSNZ 2000 for water leaving GW Water's treatment plants	Not yet reporting compliance	We have started monitoring of aesthetics consistent with new criteria in the Public Health Grading of Drinking Water Supplies. Reporting to Hutt Valley District Health Board's (HVDHB) Regional Public Health section has not been a priority due to there being some uncertainty about whether compliance values will change when the 2004 edition of DWSNZ is introduced. We expect to commence reporting from 31 December 2004.
Objective 2.2	Comply with the microbiological, chemical and aesthetic requirements of the DWSNZ 2000, for water in GW Water's distribution system		
Target 2.2.1	Comply 100% of the time with microbiological requirements of DWSNZ 2000 for water in the GW Water distribution system	Fully complying	Compliance with DWSNZ is assessed on a calendar-year basis by HVDHB. Microbiological compliance was certified for 2003. Data for Jan-June 2004 shows full compliance (see page 25).
Target 2.2.2	Comply at least 95% of the time with the chemical [P2] requirements of DWSNZ 2000 for water in the GW Water distribution system. (Water aggressiveness is excluded for the time being. The Ministry of Health has recently introduced new rules and test methods for aggressiveness. The test method is unproven and it is unclear how the new rules should be interpreted).	Not applicable. Reporting to begin once DWSNZ requirements are known	As at 30 June 2004 there were no reporting requirements under DWSNZ 2000 for wholesale distribution systems. New criteria for water aggressiveness are contained in draft revisions of the DWSNZ: we will seek to comply once these have been finalised.
Target 2.2.3	Comply 90% of the time with the aesthetic requirements of DWSNZ 2000 for water in the GW Water distribution system	Not yet reporting compliance	We have started monitoring of aesthetics consistent with new criteria in the Public Health Grading of Drinking Water Supplies. Reporting to HVDHB's Regional Public Health section has not been a priority due to there being some uncertainty about whether compliance values will change when the revised DWSNZ is introduced. We expect to commence reporting from 31 December 2004.

	Targets	Achievement 2003/04	Comment
Objective 3.1	Add fluoride to the treated water in accordance with Ministry of Health recommendations in DWSNZ 2000, unless the customer specifically requests that unfluoridated water be supplied and it is practicable to do so.		
Target 3.1.1	For fluoridated water supplies, comply with MoH recommended fluoride range (0.7 to 1.0 PPM) 85% of the time	Achieved	Compliance by treatment plant: Te Marua 99%, Wainuiomata 91%, Waterloo 98%, Gear Island 94%.
Objective 4.1	Manage assets wisely		
Target 4.1.1	Keep asset information current by updating asset database for new or refurbished assets by 31 August following works in the year to 30 June.	Achieved	All new and refurbished asset data entered on GW Water's asset management system by 21 July 2004.
Target 4.1.2	Carry out condition assessment of assets that have reached 90% of their economic life within 12 months of that event. (The life recorded in the Hansen Asset Management System, primarily for the purpose of calculating potential loss of service)	Not achieved	List of assets within two years of their recorded life expectancy prepared by 30 June 2003. Condition assessment of these assets was to be completed by 30 June 2004, but this was deferred due to other projects.
Target 4.1.3	Replace or refurbish assets before failure reduces levels of service to customers	Mainly achieved	Quality and volume of supply service levels almost always achieved as per targets under objectives 1.2, 1.3, 2.1, 2.2, 3.1.
Objective 4.2	Practise prudent financial management		
Target 4.2.1	Target a debt/levy ratio of no higher than GW Treasury Advisor's recommendation of 2.2 to 1	Achieved	Debt to levy ratio 2.0 to 1.
Target 4.2.2	Ensure that asset value recorded in the financial statements is materially correct by capitalising completed capital projects each financial year and conducting regular re-valuations, as per NZ Infrastructure Asset Valuation and Depreciation Guide	Achieved	Assets re-valued at 30 June 2004, as per the requirements of New Zealand Infrastructure Asset Valuation and Depreciation Guide.
Target 4.2.3	Annual actual direct operating costs do not exceed budgeted value	Achieved	Operating surplus of \$1.0M achieved.
Target 4.2.4	Consult with the customer territorial authorities regarding the content of annual capital works programmes	Achieved	Proposed capital works programme for 2004/05 discussed with customers on 29 April 2004.
Target 4.2.5	Annual capital works programme is completed within budget	Achieved	Budget \$5.11M. Actual expenditure \$3.82M. (See Financial overview, page 13)
Target 4.2.6	The cost of major capital works projects nominated in the annual Operating Plan does not exceed the budgeted funding	Partially achieved	Annual Plan funding for major capital works projects totalled \$5.11M. Actual expenditure on major capital works totalled \$3.82M. Cost savings were realised on 17 projects, including six projects where the scope was reduced and four projects that were deferred. Additional costs were incurred on 14 projects, including four where the scope of the project was increased.

	Targets	Achievement 2003/04	Comments
Target 4.2.7	Maintain and actively manage insurance policies or reserve funds, so that the financial impact of any natural disaster is minimised	Achieved	GW Water has a self-insurance reserve fund in relation to the Stuart Macaskill Lakes (Te Marua) and its distribution network. All other significant assets are covered by insurance policies. The insurance reserve fund stood at \$6.86M at 30 June 2004.
Target 4.2.8	Consult with the customer territorial authorities regarding the content of each proposed annual plan and Long-term Council Community Plans (LCTTPs)	Achieved	The proposed Annual Plan for 2004/05 and annual projections to 2012/13 were presented to Wellington, Porirua and Upper Hutt City Councils. Their views have been noted. Hutt City Council declined the offer of a presentation.
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	Achieved	Costs benchmarked with Watercare Services (Auckland) see page 24.
Objective 5.1	At least 'A' grading will be maintained for both the Te Marua and Wainuiomata Water Treatment Plants		
Target 5.1.1	The Te Marua Water and Wainuiomata Water Treatment Plants will meet all the requirements for 'A' grading. Results will be reported quarterly	Achieved	'A' grading maintained for Te Marua. 'A1' grading maintained for Wainuiomata.
Objective 5.2	An 'A1' grading will be achieved for the Te Marua and Wainuiomata Water Treatment Plants.		
Target 5.2.1	The Te Marua and Wainuiomata Water Treatment Plants will meet all the requirements for 'A1' grading by 31 December 2004	Progressed	Aesthetics were being monitored but not reported at 30 June 2004 (see target 2.1.3) so 'A1' grading requirements were not being met. We intend to start reporting once proposed changes to the compliance rules in the draft revisions of DWSNZ are confirmed. Wainuiomata has 'A1' grading with respect to the 1993 grading rules and DWSNZ 2000. New (2003) grading rules require compliance with aesthetic requirements of DWSNZ.
Objective 5.3	B' grading will be maintained for Waterloo Water Treatment Plant, unless Hutt City Council changes its policy of supplying unchlorinated water to Central Lower Hutt, Petone and Eastbourne		
Target 5.3.1	The Waterloo Water Treatment Plant will meet all the requirements for a 'B' grading. Results will be reported quarterly	Achieved	'B' grading maintained. Hutt City Council prefers to receive an unchlorinated supply for Central Lower Hutt, Petone and Eastbourne, so a higher grading is not possible.
Objective 5.4	'A' grading will be obtained for Gear Island Water Treatment Plant.		
Target 5.4.1	Install all necessary compliance monitoring instrumentation and software (to report on compliance with 'A' grade criteria at Gear Island Water Treatment Plant) by 31 December 2004	Achieved	Monitoring equipment is in place by 30 June 2004.

	Targets	Achievement 2003/04	Comments
Target 5.4.2	Monitor compliance (with 'A' grade criteria) and report and review monthly	Progressed	Monitoring results show that meeting the requirements for an 'A' grading will be difficult because of the impact of insoluble particles in lime on turbidity. We are considering how this problem can be overcome.
Objective 6.1	The 'Upper Hutt/North Wellington' distribution zone and 'Central Hutt/Petone' distribution zone will both receive 'a' grading by 31 March 2006 (subject to clarification of the aggressiveness rule and test procedure)	Progressed	A sampling programme consistent with achieving an 'a' grading under the new grading rules was agreed with Regional Public Health in November 2002. The final form of revised criteria for water aggressiveness to be included in the revised DWSNZ is not yet known. We were engaged with MoH representatives over the draft revisions of DWSNZ for much of the year.
Objective 6.2	The 'Wainuiomata/South Wellington' distribution zone will receive 'a' grading by 31 March 2007, provided that the cost is acceptable to GW Water and its customers (subject to clarification of the aggressiveness rule and test procedure)	Progressed	A sampling programme consistent with achieving an 'a' grading under the new grading rules was agreed with Regional Public Health in November 2002. The final form of revised criteria for water aggressiveness to be included in the revised DWSNZ is not yet known. We were engaged with MoH representatives over the draft revisions of DWSNZ for much of the year.
Objective 7.1	An Environmental Management System (EMS) certified under the terms of ISO 14001:1996 will be maintained	Achieved	A surveillance audit of the EMS is conducted annually, with a comprehensive re-certification audit required every three years. The latest re-certification audit, in August 2003, resulted in certification to ISO 14001 being maintained.

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 2003/04 financial year, and (2) additional background information where needed

	Targets	Achievement 2003/04	Comment
Objective 1.1	Be aware of all legislation, regulations, bylaws and standards that are relevant to the environmental performance of GW Water		
Target 1.1.1	Maintain a file of all resource consents issued to GW Water	Achieved	
Target 1.1.2	Identify all permitted activity rules that apply to GW Water activities, and confirm compliance with those rules by 30 June 2004	Achieved	These relate mainly to discharges from the distribution system. Discharges are recorded and comply with permitted use rules.
Objective 1.2	Comply with all legislation, regulations, bylaws and standards that are relevant to the environmental performance of GW Water		
Target 1.2.1	Obtain all necessary resource consents and building permits for new work or changes to the operation of the system	Achieved	
Target 1.2.2	Obtain and keep current all necessary trade waste permits	Achieved	Trade waste permits are held for Te Marua and Wainuiomata Water Treatment Plants and for Greater Wellington's Laboratory.
Target 1.2.3	Obtain and keep current all necessary dangerous goods licences	Achieved	
Target 1.2.4	Keep all building warrants of fitness current	Achieved	
Target 1.2.5	Review and implement the new hazardous substance component of the Hazardous Substances and New Organisms (HSNO) Act by 30 June 2004	Deferred pending HSNO Act revision details	The HSNO Act review by parliament had been completed by year end. However, the detail of changes required to procedures regarding hazardous substances as a result of the Act review had not been published.
Objective 1.3	Demonstrate 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 held	Achieved	Compliance demonstrated for all resource consents. Water-take consent for Kaitoke assessed as non-complying because the volume of water that must be left in the river downstream of the weir was passed through the weir scours on occasion, rather than over the weir, as per the consent wording. We believe that we complied with the consent in all material respects and have sought a review of the original assessment.
Target 1.3.2	Carry out and report all monitoring required by resource consents annually, or to timeframes required by consent conditions	Mostly achieved	All necessary reporting was provided to the consent manager. All but one report was delivered on time: a single discharge consent report for Wainuiomata Water Treatment Plant was delivered 11 days late.

	Targets	Achievement 2003/04	Comments
Target 1.3.3	Determine and report all monitoring required by hazardous substance legislation, where matters are not covered by resource consents	Achieved	At 30 June 2004 the detail of requirements for storing and handling chlorine under the recently reviewed HSNO Act had not been published. We will move to comply with the Act's requirements once they are available to us.
Objective 2.1	Identify all activities with environmental impacts and assess the significance of these impacts		
Target 2.1.1	Review the procedure for identifying activities that have environmental impacts and establish the relative significance for each by 31 March 2004	Achieved	
Objective 2.2	For all new projects or activities, consider environmental aspects when choosing between alternatives		
Target 2.2.1	Option reports, feasibility reports and design reports for all capital projects initiated shall include consideration of environmental effects, including their avoidance or mitigation	Achieved	All reports include an assessment of environmental impact
Objective 3.1	Adopt all practicable means to prevent pollution of the environment		
Target 3.1.1	Carry out investigations of potential accidental discharges of substances that could harm the environment at all our water treatment plants by 31 December 2004	Achieved	Comprehensive spillage control measures, including bunding and managed sumps, are in place at all GW Water's treatment plants.
Objective 3.2	Treat and dispose of wastes in an environmentally safe manner		
Target 3.2.1	Comply with trade waste permit conditions	Achieved	Trade waste licences are held for Te Marua and Wainuiomata Water Treatment Plants and the Laboratory. 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	Achieved	We met the discharge criteria of all consents but received a 'mostly complying' assessment for discharge for Wainuiomata Water Treatment Plant due a report being delivered 11 days late.
Target 3.2.3	Dispose of sludge and other solid waste to a properly consented landfill or in some other environmentally safe manner	Achieved	Sludge and solid waste is sent to a properly consented landfill at Silverstream.
Target 3.2.4	Dispose of liquid waste in an environmentally safe manner	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.
Target 3.2.5	Carry out a feasibility study for a centrate sewer main from Wainuiomata Water Treatment Plant by 30 June 2004	Achieved	Study completed. Cost identified as circa \$100,000. The cost/benefit of a sewer is being evaluated.

	Targets	Achievement 2003/04	Comments
Objective 3.3	Adopt policies, procedures and practices that will reduce waste		
Target 3.3.1	Prepare a report reviewing the options for disposing of sludge by 30 June 2004	Partially achieved	A preliminary study report on the feasibility of disposing of water treatment sludge on land at Te Marua and Wainuiomata Water Treatment Plants was received on 5 August 2004. The consultants recommended exploration and costing of other options so that the relative impact of alternatives could be compared. The current practice of disposal of sludge to consented landfill will be continued
Objective 4.1	Recognise the natural limits of regional water resources		
Target 4.1.1	Accurately monitor and report adverse trends in losses between abstraction, production and supply. Any losses are to be reported annually	Achieved	No adverse trends evident from production efficiency performance (see page 4) or distribution efficiency performance (see page 6).
Objective 4.2	Minimise energy use		
Target 4.2.1	Reduce power consumption per million litres of water produced and delivered by 3% by 31 December 2004, after taking account of increased power consumption required to satisfy the requirements of new resource consents	Progressed	This target was set in July 2000. Power use per million litres of water produced for the year to 30 June 2000 was 348 kWh. The equivalent figure for the year to 30 June 2004 was 359 kWh, an increase of 3.2% over 2000. However, the result for 2004 was adversely affected by operational changes needed to accommodate possum control in the Hutt Water Collection Area: an event that is undertaken only every fifth year. Our requirements for power and chemicals typically have an inverse relationship and we now recognise that achievement of this target depends on the mix of production between rivers and groundwater as much as how efficiently we use power in our operations. This target will be reviewed in the coming year.
Target 4.2.2	Adjust the power optimisation software each time network power tariffs change in order to reduce power use during coincident charge hours	Achieved	Pump stations are systematically programmed not to pump during CMD periods unless supply security is threatened.
Target 4.2.3	Adopt the use of energy-efficient products and equipment, where practicable and economic	Achieved	Major items of electrical equipment are assessed on a whole-life cost basis. Our electric drive motors are already close to 100% efficient and the pumps we purchase are over 80% efficient, the best currently available. During the year, high-efficiency pumps and motors were ordered for the Waterloo Wellfield (one replacement, one standby) and for new pumping stations to be built at Karori and Point Howard.

	Targets	Achievement 2003/04	Comments
Objective 5.1	Prevent damage to significant habitats and ecosystems		
Target 5.1.1	Recognise the need to maintain appropriate minimum flows and, as far as practicable, natural flow variation in watercourses below points of abstraction	Maintained	Minimum flows 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 maintained at all times.
Target 5.1.2	Avoid damage to significant ecosystems by new capital works or, if this is unavoidable, mitigate the damage by establishing, if practicable, equivalent replacement ecosystems	Achieved	No new capital works that impacted on significant ecosystems.
Target 5.1.3	Complete a feasibility report on whether to proceed with a fish pass over the Orongorongo weir by 31 December 2003	Achieved	Report received 24 December 2003. The works needed to reduce the flow velocity enough to allow fish to swim comfortably would necessitate a very long fish passage, which is considered impractical given the nature of the Orongorongo River. However, juvenile Shortjaw Kokopu and Redfin Bullies, two of five species we would like to see larger populations of above the weir, are described as good climbers and measures to assist these species are planned.
Target 5.1.4	Complete Stage 2 of the Wainuiomata fencing project by 30 June 2004	Achieved	
Target 5.1.5	Assist with the development of a protocol for whole effluent toxicity testing for native fish by 30 June 2004	Deferred	High cost and an alternative proposal have resulted in this work being deferred
Target 5.1.6	Investigate the possibility of (developing) a wetland behind the lower Wainuiomata Dam by 30 June 2004	Achieved	Feasibility and dam safety reports completed (see page 6).
Objective 6.1	All recommendations made by the Utility Services Committee of Greater Wellington involving investment or the use of natural resources shall include consideration of environmental impacts		
Target 6.1.1	All reports to the Utility Services Committee or the Divisional Manager, Utility Services proposing investment or use of physical resources shall address the environmental aspects of the proposal, including any practicable alternative courses of action	Achieved	Consistent with Greater Wellington policy, assessment of environmental impacts is included in all reporting.
Objective 7.1	Achieve environmental awareness in all GW Water staff		
Target 7.1.1	Provide initial training for all new GW Water staff in environmental awareness and the EMS within three months of commencing employment	Achieved	

	Targets	Achievement 2003/04	Comment
Objective 7.2	Ensure that all staff whose actions have potential environmental impacts, understand that potential		
Target 7.2.1	Provide specific training to staff whose actions have potential environmental impacts, to ensure they understand those potential impacts and their significance, and are equipped to eliminate or mitigate any impact	Achieved	Three levels of environmental awareness training have been identified, depending on the duties of employees. Specific training is given and the details are recorded in a training database against individual employees.
Objective 8.1	Ensure that third parties engaged by GW Water are aware of environmental matters or concerns associated with the work they are engaged to do		
Target 8.1.1	All formally documented works and supply contracts shall include any applicable environmental requirements	Achieved	
Objective 8.2	Where practicable, the environmental performance of a contractor or supplier shall be taken into account in the assessment of tenders		
Target 8.2.1	Include environmental performance as an attribute when assessing tenders for major works or supply contracts by the weighted attribute method	Achieved	The weighted attribute assessment method, including environmental performance, is used to assess all tenders for major works.
Objective 9.1	Report annually on resource consent compliance		
Target 9.1.1	Facilitate the preparation of the GW Consents Investigations department's annual compliance report	Achieved	Issues regarding the reliability of some data from Kaitoke weir resulted in a non-complying assessment for water take at Kaitoke. These issues are being investigated and a report will be provided to the consent manager.
Objective 9.2	Report annually on the environmental performance of GW Water		
Target 9.2.1	Prepare an annual report for the year ending 30 June on the environmental performance of GW Water by 30 November each year	Achieved	Publication of GW Water's Report of Business Activity 2003/04 by 30 November 2004 meets this target.

Utility Services Committee members

The following councillors were members of the Utility Services Committee for the year ended 30 June 2004. Please note that membership of the Utility Services Committee changed following local body elections in October 2004.

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¹ The Council Chairperson and Council Deputy Chairperson are not members of the Utility Services Committee when considering Regional Bulk Water Supply matters.

² The Deputy Council Chairperson does not vote when the Council Chairperson is present.

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

FOR FURTHER INFORMATION

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