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Greater Wellington's Wainuiomata Water Treatment Plant, which received an 'A1' grading from the Regional Public Health unit of Hutt Valley District Health Board in June 2003.

INTRODUCTION

Reporting Scope

This report covers the main achievements and challenges for Greater Wellington Regional Council's Water business (GW Water), arising during the 2002/03 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 territorial authority water supply customers and other stakeholders with a more detailed account of our operations.

The commentary contained in pages 2 to 10 reflects our long-term performance indicators 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 the performance indicators and management systems.

Our Quality and Environmental Management Systems are based on a process of continuous review and improvement. We recognise that further refinement is needed to identify and quantify targets for some objectives, and will make this an improvement priority for 2003/04. The objectives and targets for both management systems appear in full from pages 36 to 43.

Our Purpose

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

What We Do

Collection, treatment and supply of high quality potable water to our Region's four city councils – Hutt, Porirua, Upper Hutt and Wellington – for supply to consumers. This involves:

- Operating four water treatment plants, 15 pumping stations and 183 km of pipeline
- Supplying on average 150 million litres of water daily, 1,730 litres every second, to meet the needs of around 360,000 people
- Actively 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
- Commitment to environmentally responsible working practices
- Managing assets valued at $250 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. Publicly elected councillors (the Utility Services Committee – see page 44 for details) are responsible for setting water supply policy and overseeing the work programmes undertaken. GW Water is organised into five main functional areas: Operations (production and distribution); Laboratory; Engineering Consultancy (project design and management); Strategy and Asset (system planning, asset management, reporting and communications); and Support (financial, administrative and secretarial services).

Performance Indicators

GW Water has six long-term performance indicators (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 2002/03 are published on pages 22 to 25 of this report. Greater Wellington's current 10-Year Plan, incorporating its 2003/04 Annual Plan, contains targets for each PI for the next three years. The 10-Year Plan is available from the Council's Internet site or by contacting us (see back cover).

Management Systems

GW Water operates Quality and Environmental Management Systems, certified to international standards ISO 9002 and ISO 14001 respectively. Our laboratory holds IANZ accreditation to ISO 17025, a dedicated quality management standard for laboratories. These management systems are independently audited annually.

FINANCIAL PERFORMANCE

Financially 2002/03 was a successful operating year. In summary, main achievements were:

- **Total operating costs** increased by just $0.4 million (1.8 percent), despite the imposition of $1.1 million of new costs since 2001/02.

New utility infrastructure rates and significantly higher insurance premiums were unavoidable cost increases. Excluding those items, operating costs were reduced by $0.7 million year on year.

- An **operating surplus** of $2.0 million was achieved; this was used to retire debt ahead of schedule. (QMS target 4.2.3, page 38)
- **Debt** was reduced by $4.0 million and is now $24.5 million less than in 1997. This has been achieved while funding a $23.3 million capital expenditure programme over the same period.

The Council's Treasury Management Policy translates to a target maximum debt level of $50.1 million based on the current water levy. Actual debt is now some $2 million below the target maximum. (QMS Target 4.2.1, page 38)

- **Capital expenditure** was $2.4 million, 14 percent below budget. (QMS Targets 4.2.5, 4.2.6, page 38)

Assets are maintained or replaced in accordance with an Asset Management Plan. The water supply infrastructure is relatively modern and in good condition. We are in a phase of low growth in demand for water; hence we have entered a maintenance phase, with lower capital expenditure anticipated.

- The **bulk water levy** for 2003/04 has been held at the same level ($25.6 million including GST) as for 2002/03. The Council has held or cut the water levy in each of the last seven years and it is now as low, in actual dollars, as at any time since 1992/93.

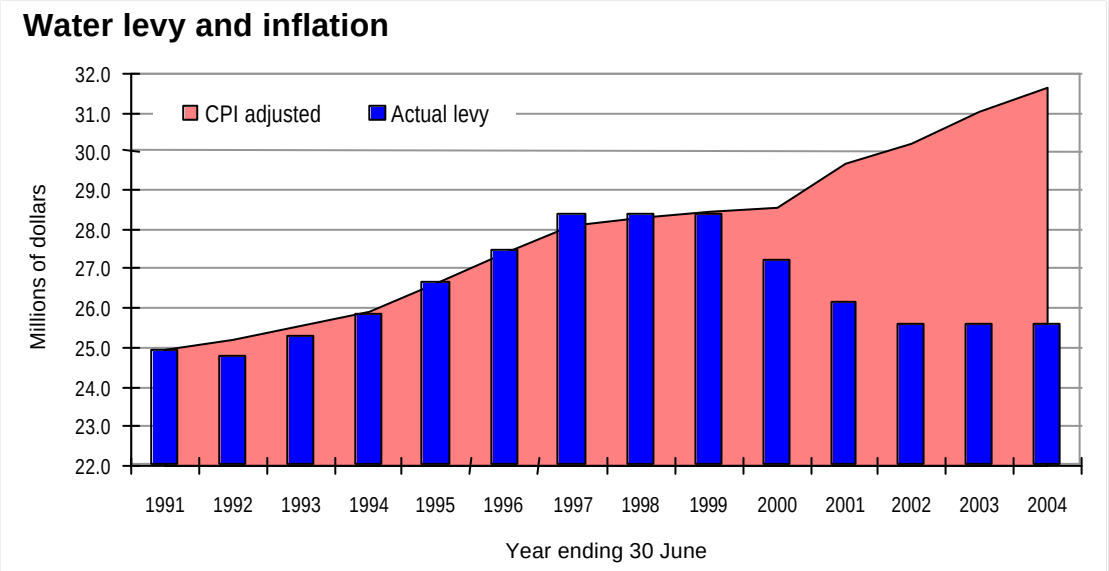
Benchmarking with Watercare Services, Auckland's wholesale water supplier, shows our total supply costs are competitive. (QMS target 4.2.9, page 38)

ENVIRONMENTAL PERFORMANCE

GW Water is 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 introduced an environmental management system (EMS) - which has ISO 14001 accreditation – in 1996, to instil greater focus and discipline around these activities.

- **EMS certification maintained** to ISO 14001 (QMS Objective 7.1, page 39)

Under most operating conditions we have some flexibility to vary the mix of production between aquifer and river sources. Treating aquifer water requires relatively little chemical adjustment and results in less treatment waste, but uses more power for distribution.



The water levy for the year to 30 June 2004 is just $0.6M more than the levy for the year to 30 June 1991, an increase of only 2.4 percent in 13 years. In comparison, cumulative inflation (CPI) for the period 1991 to 2003 has amounted to 26.3 percent. (CPI figures are 12 months to 31 December – year to December 2003 estimated. Source Bancorp.)

Information about the relative environmental impacts of production from the aquifer versus rivers is not available to us, so we are not able to determine which results in the least harm. Until we have better information, we will continue to produce water at minimum marginal cost, subject to meeting our obligations under the RMA and taking a conservative view regarding supply security.

Water-take (see also PIs, page 23)

- **'Mostly complying' assessment** for water-take consents (EMS Target 1.3.1, page 40)

GW Water holds 12 water-take resource consents. A 'mostly complying' assessment was received for the 2002/03-year (rather than fully complying), due to two fairly minor issues. The Hutt River dropped below the consented minimum flow downstream of our intake for 30 minutes on a single day and two monthly reports were delivered late to the consent manager (see EMS Target 5.1.1, page 42).

- **Water-take** 60,817 million litres (ML), 3.5 percent more than 2001/02. This includes an increase of 598ML stored water volume. Water take net of storage change during 2002/03 increased by 3.7 percent year on year.
- **Production efficiency** The volume of water-take that is not evident in the volume of water treated (unaccounted-for water-take) was 6.4 percent of the take, after allowing for increased storage; this is more than we would normally expect. Work is underway to identify and quantify the reasons for this result. (EMS Target 4.1.2, page 41)

Demand Management

GW Water aims to manage demand for water (for the current population level) within the limits of its existing water take consents and system capacity, so that shortages are rare (no more than once in 50 years on average) and resources are used effectively.

Watering can drive daily water use for our supply area to peak as much as 50 percent above the annual average day. As in previous years, a few simple conservation-friendly behaviours around garden watering were promoted during the summer. (EMS Target 4.1.1, page 41)

Gardeners typically remembered having seen or heard gardening-related conservation messages, but few could positively identify our advertising as the source of the messages and the campaign did not appear to have any impact on the prevailing view that gardening uses relatively little water. Increasing the public's awareness of the impact of garden watering on peak water use levels appears necessary in order to increase the adoption of water conservation behaviours by gardeners.

The level of water use during mid summer (December to February) was moderate - the fifth highest total in the last ten years - with water use exceeding 200 ML on only one day. While demand for water remained at a manageable level, we do not have the tools to distinguish the impact of promotional activity from other factors, primarily climate, on that result.

Electricity Use (EMS Objective 4.2, page 41)

Electricity use for treating and supplying water to Wellington's four cities is equivalent to that used by 2,500 average households and represents about 8 percent of total operating costs.

- **Electricity use 1.1 percent lower** for production and distribution (kilowatt-hours per million litres treated) than for 2001/02.

The reduction in power use is consistent with a 0.5 percent shift to production from our surface water treatment plants and a slight reduction in the volume of untreated water pumped back from the Stuart Macaskill Lakes for treatment at Te Marua.

Power factor correction equipment was installed on six pumps that feed water from the Waiwhetu aquifer to Waterloo Water Treatment Plant. Reducing the power factor on our pumps has minimal impact on our power demand, but contributes to more efficient generation and supply of electricity, thus providing a national benefit. This action is also saving us between $750 and $950 monthly in electricity charges, from avoidance of power factor-related tariffs. (EMS Target 4.2.3, page 42)

Renewable energy In June 2003 we reached an understanding in principle with an electricity generator for a long-term supply contract linked to their expansion of a wind farm. We expect that a contract will be concluded during the 2003/04 financial year. If this initiative goes ahead, it will mitigate part of the environmental impact of our electricity use by directly

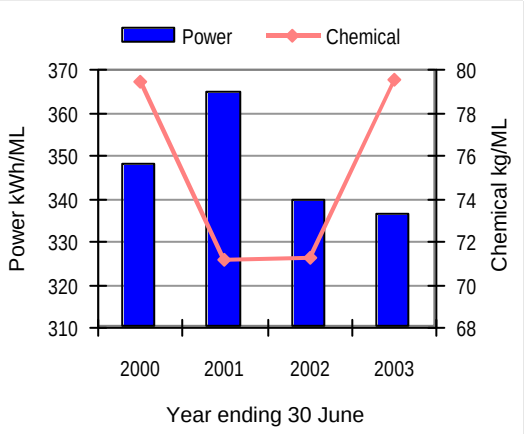
supporting local generation from renewable sources. (EMS Target 4.2.3, page 42)

Power saving targets The National Energy Efficiency and Conservation Strategy (September 2001) has a saving target for NZ of 20 percent by 2012. Our electricity use for 2002/03 (total and by volume of production) was 8 percent lower than 2000/01, however, that result is due in part to unusually high power use in the base year. We see little room for further improvement at current supply volumes.

Since July 2000 we have targeted a 3 percent power saving by 31 December 2004 (1999/2000 as the base year). Our power use (kWh/ML) for the 2002/03 financial year was 3.4 percent lower than the base year. (EMS Target 4.2.1, page 41)

Future power efficiency options Since 1998 we have investigated various power efficiency options, and adopted those that were financially viable (EMS Target 4.2.2, page 42). There remains some flexibility to reduce power use further, but largely at the expense of greater chemical use and increased total supply cost. Universal metering appears the only chance of meeting the government target, however, the cost far outweighs the forecast dollar power savings. Given our approach to minimise marginal cost, making savings consistent with the national target appears beyond our reach.

Power and Chemical Use



Materials

- **Chemical use** per million litres of water treated was 13 percent higher than for 2001/02. Several factors contributed to this result (see below).

Chemical use by volume of water treated is primarily influenced by the source of water for treatment. Waiwhetu aquifer water needs less treatment than river water. There is also a natural variation in the quality of water taken direct from rivers and from our storage lakes, the latter being strongly influenced by levels of algae growth in the lakes. The choice between alternative chemicals and treatment processes can also affect results.

The share of supply between rivers and the aquifer was virtually unchanged year on year, which points to poorer water quality from our surface catchment areas and storage lakes as the likely cause of increased chemical use. At present we do not assess chemical use relative to source water quality, however, we are investigating the feasibility of doing so, with a view to benchmarking typical chemical needs for the range of conditions experienced.

Metering was installed during the 2002/03 year, to give accurate measurement of chemical use when treating water from the Stuart Macaskill Lakes at Te Marua.

Lime waste recycling Wainuiomata Water Treatment Plant's lime system must be flushed regularly to keep the dosing lines clear, resulting in up to 5,000 litres of waste lime slurry weekly, which is removed from site and safely disposed of. We are looking into the feasibility of recycling the lime component of the slurry, to supplement lime dosing for water pH correction. (EMS Target 2.2.1, page 41)

Future chemical efficiency options Process trials in 1999 realised significant efficiency gains, but we do not believe there is now scope for further dramatic improvement. Chemical use and sludge per million litres of production will vary from year to year depending on the quality of source water. Our catchments are actively managed for good quality source water, therefore, changes in chemical or sludge volumes are likely to stem largely from environmental conditions that are beyond our control.

Emissions and Waste (see also PIs, page 23)

- **Full compliance with all discharge consents** (EMS Target 3.2.2, page 41)
- **One new discharge consent obtained** (EMS Target 1.2.1, page 40)

Caustic soda spill A minor environmental incident resulted from a pipe failure at Te Marua Water Treatment Plant. Caustic soda was

discharged into a stormwater pipe that drains to a stream. Repairs of the pipe and dilution of the spillage were carried out immediately. The incident was reported to Greater Wellington's Regional Pollution Response unit, which approved the mitigation measures taken.

- 1,812 tonnes of **dewatered sludge** were sent to a consented landfill (Silverstream).
- Sludge weight by volume of river water treated increased by 4.9 percent over 2001/02: a result consistent with the decrease in chemical use efficiency noted above, which indicates generally dirtier source water from rivers year on year. (EMS Targets 3.2.3, 3.3.1, page 41)

Land Use/Biodiversity

(EMS Objective 5.1, page 42)
Greater Wellington manages 16,500 hectares of water catchment land in the Tararua and Rimutaka ranges, to ensure that conditions conducive to high quality 'raw' water are maintained while enhancing biodiversity within the water catchments.

Pest animal control Managing the populations of pest animals in the water collection areas makes an important contribution to 'raw' water quality by reducing the sources of pathogens and protecting vegetation, which works as a natural filter of contaminants.

Contracts with professional hunters to cull large pest animals netted 102 goats, 42 pigs and 13 deer across our water collection areas during the year. A programme whereby electronically tagged (Judas) goats are tracked and any companion goats found with them culled has been very successful in the Wainuiomata-Orongorongo catchment since January 2001. A first professional goat control operation was conducted in the Hutt catchment in May 2003 and 'Judas' goats were subsequently released. (QMS Objectives 5.1, 5.2, page 39)

At year-end, planning was well advanced for a routine possum control operation, using 1080 bait, in the Hutt water collection area. (QMS Objective 5.1, page 39)

Last year, we noted that the Environmental Risk Management Authority (ERMA) would shortly conduct a review of 1080 use for pest control in New Zealand. That review was postponed. The Department of Conservation and the Animal Health Board, joint applicants for the review, identified that aspects of the Hazardous Substances and Natural Organisms (HSNO) Act would need to be amended before any new controls on 1080 use that are not specifically listed in HSNO regulations could be imposed. The timing for the 1080 review is now uncertain. Pending ERMA's review, we continue to advocate the careful use of 1080 as the most effective possum-control measure available.

Wainuiomata catchment fence Construction of a fence along the northern boundary of the Wainuiomata catchment area was started, to prevent infiltration of deer and stock from adjoining private land. The first section of fence – 4.5 kilometres (km) - was built this year. The remaining 14 km will be completed over the next four years. (EMS Target 5.1.5, page 42)

A **wheel wash** was built at the entrance to Wainuiomata catchment, to guard against the accidental transfer of invasive plant species into the catchment; an area described as one of the best examples of lowland native forest in the lower North Island. Discharge consent was obtained for this activity. (EMS Target 5.1.3, page 42)

Environmental assessment of supernatant We continued to investigate the environmental impacts of supernatant discharge (water that has been used for filter cleaning, with the solids removed) to the Wainuiomata River.

In January a study of macro-invertebrates identified only minor differences between test sites immediately upstream and downstream of Wainuiomata Water Treatment Plant's discharge point. The results are indicative of good water quality at both locations, and suggest that supernatent discharge has had little effect on the aquatic ecology of the river.

Fish habitat study In February Massey University's Institute of Natural Resources (INR) was commissioned to conduct a repeat study of freshwater fish numbers in the Wainuiomata River, with reference to discharges from the Wainuiomata Water Treatment Plant and the physical barrier of the Lower Wainuiomata Dam. While both factors appeared to influence fish numbers at three sites investigated, it was not possible to identify the relative contribution of each. A further study of the effects of aluminium residues in supernatant, specific to the native fish species in the river, was recommended. We have deferred a decision on whether to proceed with that study, following

a proposal for a wetland to be created behind the Lower Wainuiomata Dam: one of the sampling sites. (EMS Target 5.1.6, page 42)

Establishing a wetland behind the Lower Wainuiomata Dam would provide a sustainable management regime for the area and create educational and recreational opportunities. However, it would potentially change the suitability of habitat for some fish species. We believe that it is not worthwhile to commit resources to further investigation of fish habitat above the Lower Dam before the wetland proposal is investigated further and the related impacts of the proposal are better understood. (EMS Target 5.1.7, page 42)

SOCIAL PERFORMANCE

Commitment to sustainable development means recognising our role in the wider community. It also relies on building strong relationships with stakeholders. Supporting public health via a reliable high quality water supply makes a very important contribution to a sustainable region.

Water Supply (see also PIs, page 23)

- **Security of supply standard achieved**: all customer demand for water was met (QMS Objective 1.1, page 36)

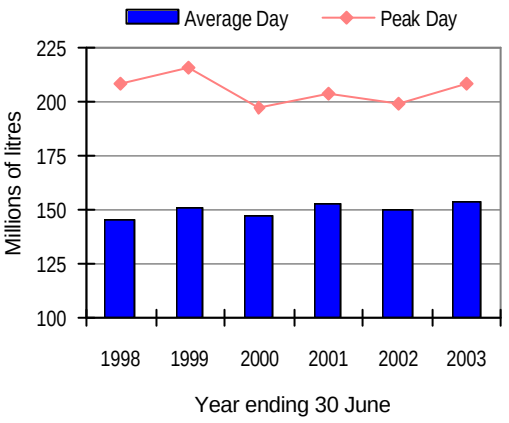
Supply conditions - summer and autumn were relatively dry in the water collection areas, with lower than average monthly rainfall and river flows for the period January to May (see pages 26 to 29 for detail). Similar supply conditions occurred during summer and autumn of 2001.

The severity of the drought, measured by low flow over a rolling three-month period, was assessed as a seven-year return-period for the Hutt River at Kaitoke and a ten-year return-period for the Wainuiomata and Orongorongo Rivers within their respective catchment areas[1].

The droughts of 2001 and 2003 have prompted us to reconsider the ability of our system to meet all demand during droughts less severe than a 1-in-50 year event. It may only take a 1-in-5 to 1-in-10 year event for no water to be available from the Wainuiomata-Orongorongo catchment for short periods. If that were to coincide with a period of consistently high daily water use, we may be faced with short-term peak supply difficulties. Investigations are under way into how to overcome this potential problem. (QMS Objective 1.1, page 36)

- **Water treated** 56,327ML: 2.7 percent more than during 2001/02.
- **Water supplied to customers** 56,050ML, 2.4 percent more than in 2001/02 and 0.2 percent more than in 2000/01, the last year with similar climatic conditions. The supply volume was the largest since 1991/92.
- **Distribution efficiency** The volume of water treated that is not evident in the volume of water supplied (unaccounted-for treated water) was 0.5 percent of water treated: less than the margin of error for our meters (±1 percent). (EMS Target 4.1.2, page 41)
- **Average supply** was 154 million litres (ML) per day.
- **Maximum day supply** was 208ML, 35 percent above the average day, but less than the maximum day supply for the last 10 years – 216ML.

Water Supply – Peak and Average Day



Water Quality (see also PIs, page 22)

- **Microbiological compliance** with the Drinking-Water Standards for New Zealand 2000 achieved for all treatment plants and for the distribution network (QMS Targets 2.1.1, 2.2.1, page 37)
- **Chemical compliance** achieved for all treatment plants except Gear Island (detail below). (QMS Target 2.1.2, page 37)
- **'A1' grading** received for Wainuiomata Water Treatment Plant (QMS Objective 5.2, page 39)

[1] Wainuiomata River at Manuka Track; Orongorongo River at Upper Dam Site

- **Laboratory accreditation** achieved to the new ISO/IEC 17025 dedicated laboratory quality standard, following an assessment by IANZ in March 2003.

Quality system upgrade GW Water operates a quality management system (QMS) that complies with the international standard ISO 9002 (1994). Certification was maintained following an external audit in December 2002, and good progress has been made in preparing to upgrade to ISO 9001 (2000), a new version that has customer satisfaction as the key outcome of quality management practices. We anticipate achieving compliance with ISO 9001 (2000) by December 2003.

Ministry of Health grading system The Ministry of Health rates the quality and security of water supplies using a grading system for the source and treatment of a water supply (graded A1-E), and for water reticulation systems (graded a1-e).

Water treatment plant grading 'A' and 'B' grading assessments were maintained for our Te Marua and Waterloo Water Treatment Plants respectively. Waterloo cannot receive a higher grading, as Hutt City Council prefers to receive unchlorinated water and manage the slightly increased health risk associated with this. Hutt City has recently reaffirmed that it wants to continue being supplied with unchlorinated water.

All recorded values for chemical content in treated water were within the acceptance limits of the Drinking-Water Standards, except for a single event at Gear Island Water Treatment Plant. The maximum allowable value for fluoride was exceeded by 1.1 parts per million on a single day in September 2002, resulting in a non-complying assessment against the Standard. Changes to internal communication procedures resulting from the review of this incident and the installation of new fluoridation monitoring equipment should ensure there is no repeat. We do not expect this to affect the plant's 'B' grading.

'A1' grading was received for Wainuiomata Water Treatment Plant in June 2003. While we were confident that water supplied under the plant's previous 'C' grading was perfectly safe, confirmation of the 'A1' grading gives our customers and the public further assurance that water supplies from Wainuiomata meet the highest quality standard.

Source and treatment regrading sought We are in discussion with Regional Public Health officials about a reassessment of the 'source and treatment' grading that applies to our Gear Island treatment plant and, by association, most of Wellington City's water supply zones. Supply zones receive the same grading for the source and treatment of water as the lowest graded treatment plant that supplies the zone. As our Wainuiomata treatment plant has been regraded 'A1', the 'B' grading for both Gear Island and Waterloo treatment plants will now apply to nine of Wellington City's 11 supply zones. Gear Island's grading predates improvements to that plant, which we are confident have brought it up to A-grade standard. Although Waterloo Water Treatment Plant cannot receive higher than a 'B' grading while water supply to Hutt City remains unchlorinated, all supply to Wellington from Waterloo is chlorinated at Gear Island. We believe that the 'source and treatment' grading for Wellington's supply zones should reflect the water supplied to that city. (QMS Objective 5.4, page 39)

National grading changes likely Planned changes (in draft at 30 June 2003) to the *Public Health Grading of Drinking Water Supplies* would result in our distribution system being included in the *Register of Community Drinking Water Supplies in New Zealand*[1]. Bulk distribution systems are not graded at present.

For the purpose of grading our distribution system, it has been split into three zones: each zone has its own sampling requirement for chemical, microbiological and aesthetic parameters, depending on the population served. Until recently, we have tested within our distribution system only for microbiological contamination. Public health officials have approved the new monitoring programme as consistent with meeting the standards anticipated for an 'a' grading. This new monitoring started in January; reporting will begin once the draft changes outlined (above) have been adopted. (QMS Objectives 6.2, 6.3, page 39 and Targets 2.2.2 and 2.2.3, page 37)

Aeration trial at Waterloo As a consequence of our expectation that our bulk distribution system will shortly be covered by the Ministry of Health's grading criteria, a trial was started to gauge the effectiveness of aerating raw water as

[1] An annual report by the Ministry of Health of grading for every water treatment plant and reticulation system in NZ

it enters Waterloo Water Treatment Plant. If successful, aeration would reduce turbidity from lime solids in the treated water as well as reducing the amount of lime used. (QMS Target 2.2.1, page 37, EMS Target 2.2.1, page 41)

Water aggressiveness - a measure of water's leaching effect on pipes and fittings – is also likely to become part of the Ministry of Health's grading criteria for distribution systems. We share with our customers concern that the standard test method for water aggressiveness defined in the Drinking-Water Standards may overstate aggressiveness levels of the water received by consumers within the Wellington metropolitan area and result in unfounded public concern. As a consequence, we are planning a co-ordinated monitoring programme with our customers, to test this belief. Results from the standard test method will be compared with those from monitoring of domestic supplies at multiple sites within the four cities in the coming year. The results of this investigation will be discussed with Ministry of Health officials. (QMS Objectives 6.2, 6.3, page 39)

System and Risk Planning

In December 2001 we identified that the recovery period for restoration of water supply to the Region's cities after a movement of the Wellington fault line would probably be at least four weeks; such events are forecast to occur on average every 500 to 700 years. A working group involving Lifelines organisations, including the four city councils, was established in February 2002 to examine the gap that exists between locally held emergency water (by households, institutions, businesses and councils) and the restoration of bulk supplies; households typically store enough water for only a few days. A Mitigation and Preparedness Action Plan, summarising the response and recovery strategies of the five councils involved in water supply to the Wellington area, was due to be finalised shortly after 30 June 2003.

Seismic mitigation projects The Action Plan calls for GW Water to continue with its systematic improvement of the security of its distribution system. Major seismic risk reduction projects in progress include: realigning the Kaitoke-Wellington pipeline away from an area prone to slips on Haywards Hill; relocating the Porirua branch main at Paremata onto the new bridge across the entrance to Pauatahanui Inlet; and moving Karori and Randwick pumping stations to lower risk sites. These works should be completed by 30 June 2005.

Talks started between Wellington City Council, Capital & Coast Health and GW Water, about providing Wellington Hospital and the city's southern and eastern suburbs with more locally-stored water in the event of our treatment facilities or distribution system being disabled. A suitable site for a new reservoir has been identified. Discussions about allocation of costs were continuing at 30 June 2003.

Seismic event damage and insurance reviews
Three separate, but related, reviews of possible damage to water supply assets from seismic event were undertaken by consulting engineers on our behalf during the year.

An assessment of insurance cover for treatment plants, pumping stations and reservoirs identified a maximum probable loss of $43 million arising from a major rupture of the Wellington fault. Insurance policies covering that level of loss are already held. (QMS Target 4.2.7, page 38)

A similarly based assessment of distribution pipelines and tunnels identified the probable cost of repair[1] at $18 million. Our insurance policies do not cover pipelines, tunnels, or the Stuart Macaskill Lakes. Instead, a self-insurance investment fund is being built up. In light of this review and our expectation that asset values will increase significantly over the next ten years, the annual contribution to the fund will be increased from $0.5 to $0.75 million from 1 July 2003. The investment fund's value was $5.1 million at 30 June 2003. (QMS Target 4.2.7, page 38)

Safety review – Stuart Macaskill Lakes A five-yearly safety review of the Stuart Macaskill Lakes was completed in accordance with the NZSOLD[2] Dam Safety Guidelines. The lakes were assessed as safe, with appropriate operating, maintenance and surveillance procedures in place. Only minor issues were noted, the most significant being a suggestion for further review of the lakes' towers and finalising the draft Emergency Action Plan. Both these matters will be addressed during 2003/04.

Supplementary water supply to Kapiti The possibility of Greater Wellington providing a supplementary water supply to Kapiti Coast

[1] For a 90-percentil loss (i.e., 10% probability of being exceeded); this level of loss is commonly used for assessing earthquake insurance requirements

[2] New Zealand Society Of Large Dams

District Council (KCDC), as we reported last year, now looks unlikely. KCDC has identified a combination of storage lakes and bores as its preferred option for a long-term solution to the area's summer water supply shortfall, and has commenced detailed investigation of those options.

Wholesale water supply contract During the year, we began talking with our customers again about a formal contract for supply of water to them. Greater Wellington initiated negotiation of a contract with the four city councils in 1998, but agreement could not be reached. The Cities have indicated that they now wish to revisit the possibility of a contract with us, and work on draft wording has started. A clear statement of obligations and service levels is in the interest of all parties, and we look forward to reaching agreement with our customer on this matter. Agreed levels of service will replace the self-imposed levels currently incorporated within our Quality Management System.

Education and Recreation

Raising awareness about the Region's water supply is important to fostering greater action by the public in support of a more sustainable Region: the goal at the heart of Greater Wellington's long-term plans.

Environmental education GW Water has for the last three years contributed directly to the development of the Council's *Take Action for Water* environmental education programme, designed to help 8-12 year olds understand and care for water. In the coming year (2003/04), our funding emphasis will shift to another Council initiative, to encourage householders to adopt more sustainable behaviour across a range of issues, including water. Both work programmes aim to promote learning about the value of water, however, we are only able to support one of these initiatives within the existing (2002/03) budget allocation for environmental education. Our commitment to hold costs at the same level as for 2002/03 has also resulted in a substantial reduction to the budget available for water conservation promotion during the summer of 2003/04.

Treatment plant tours GW Water welcomes student and community groups to its treatment plants, to demonstrate how water treatment and supply to the Region's four cities are managed and to raise public awareness about the value of water. Approximately 1,300 people were hosted during 2002/03; the feedback received from visiting groups was overwhelmingly positive. Visitor numbers included some 600 people who took advantage of a Council programme offering guided walks within the Wainuiomata and Orongorongo Water Collection Areas. GW Water continues to support carefully managed public access to these water catchments, as long as raw water quality is not compromised.

Recreational hunting The annual ballot to hunt in the Wainuiomata and Orongorongo Water Collection Areas during autumn again proved popular, with 148 applications for the 40 available permits. The ballot hunt is primarily offered to accommodate recreational hunters, but also contributes to pest animal control.

Workplace health and safety (see also Health and Safety PI, page 24)

The Council operates a health and safety management system – *Keeping Employees Safe at Work*. GW Water also undertakes to comply with all relevant codes of practice and legislation, and to continually improve procedures and provide appropriate training to promote safe working. The health and safety plans of all contractors are reviewed prior to their employment.

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

Accident and Injury Rates	2002/3	2001/2	2000/1
Staff numbers (year end)	56	56	86
Incidents [1] (per 100 employees)	36.3	25.3	43.2
Frequency (Incidents per million hours work)	207	128	240
Severity (Days lost per million hours work)	523	92	880

Our accident and injury rates for 2002/03 were higher than rates for 2001/02. However, data has only been gathered in this format for three years, so we are not able to assess the true significance of this result. It is worth noting that the substantial increase in days lost due to injury (from 10.5 in 2001/02 to 50.5 in 2002/03) was equivalent to the leave resulting from a single chronic back injury sustained in August 2002, when an office chair collapsed.

[1] Incident figures were presented last year as a monthly average per 100 employees. They have been restated here as an annual total per 100 employees.

DETAILED FINANCIAL & WATER SUPPLY PERFORMANCE

FINANCIAL OVERVIEW

The financial results for the reporting period ended 30 June 2003 reflect a pleasing operating performance for GW Water, especially as additional non-controllable operating costs of $1.1 million for infrastructure rates and insurance premiums have been absorbed, when compared to 2001/02. An operating surplus of $2.0 million has been achieved: $1.4 million ahead of that budgeted, with all cash surpluses generated from operational activities applied to accelerating the ongoing rate of debt principle repayment.

These results incorporate the decision taken in June 2002 to maintain the wholesale water levy at $22.8 million for the 2002/03 financial year, in spite of the known increase in non-controllable operating costs. This decision ensured that the current water levy was maintained for another year at its equal lowest level since 1992/1993. In the meantime, the GW Water's debt has fallen by a further $4.0 million since June 2002 and in total by $24.5 million since June 1997.

Total operating expenditure increased by 1.8 percent, from $21.6 million to $22.0 million, compared to a 2.6 percent reduction in 2001/02. Total contractor and consultant costs were reduced by 8.5 percent compared to the previous year, whilst net financial costs also continue to fall as the debt level diminishes, being 17.5 percent lower than for 2001/02. However, increases in rates (up 365 percent) and insurance charges (up 73 percent) outweighed these savings.

The ability to absorb substantial incremental costs while continuing to realise offsetting cost savings is a testimony to the planning, development, operation and maintenance of the supply system over many years. The system again proved to be very robust, comfortably meeting the relatively high demand for water during a dry late summer and autumn. This contributed to a 2.4 percent increase in supply (56,050 ML) compared to 2001/02 (54,760 ML).

Finalised expenditure on the capital works programme amounted to $2.4 million. This was $0.4 million lower than budgeted, due primarily to the deferral of some projects into 2003/04. Major capital projects during the year included completion of refurbishment of the OK main pipeline along Petone foreshore, replacement of air valves on the Hutt Road, and purchase of a standby generator for the Waterloo Water Treatment Plant, to enhance security of supply. In addition, the process of relocating our laboratory, distribution and Waterloo-based production staff to purpose-built premises in Lower Hutt was completed on schedule.

Audit New Zealand has reviewed the financial information of Greater Wellington Regional Council's Water unit. Audit New Zealand can provide assurance that the financial information has been correctly extracted from the financial systems of the Greater Wellington Regional Council and provides a true and fair representation of the activities of its Water unit for the year ended 30 June 2003.

The information contained in the following eight pages details the financial results for GW Water. The table below summarises financial performance since 1999.

Financial Summary

	Actual $000 June 1999	*Actual $000 June 2000*	*Actual $000 June 2001*	*Actual $000 June 2002*	*Actual $000 June 2003*
Operating revenue	**27,403**	**26,206**	**25,252**	**24,437**	**24,004**
Depreciation	4,335	5,009	5,117	5,320	5,347
Financial costs	6,166	5,399	4,943	4,497	3,794
All other operating expenditure	11,862	12,264	12,251	11,481	12,862
Surplus before abnormal items	**5,040**	**3,534**	**2,941**	**3,139**	**2,001**
Abnormal items					
Karori land asset write down	(1,590)	-	-	-	-
Distribution stock write up	1,111	-	132	-	-
Interest – buy back of debt	(455)	-	-	-	-
Petone de-fluoridation	-	-	205	-	-
Wainui pipeline easement revenue	-	-	-	500	-
Infrastructure asset w/o – 1999/2002	-	-	-	(307)	-
Operating surplus	**4,106**	**3,534**	**3,278**	**3,332**	**2,001**

FINANCIAL STATEMENTS

Statement of Financial Performance

For the year ended 30 June

	Notes	2003 Actual $000s	2003 Budget $000s	2002 Actual $000s
OPERATING REVENUE				
Water supply levies		22,777	22,777	22,777
Internal revenue		374	356	744
Other revenue (interest & external)		853	736	1,416
Total operating revenue		**24,004**	**23,869**	**24,937**
OPERATING EXPENDITURE				
Personnel costs		3,441	3,616	3,476
Contractor & consultant costs		1,316	1,300	1,438
Internal consultant costs	*2*	671	718	699
Interest costs		3,794	4,317	4,497
Depreciation		5,347	5,346	5,320
Loss / (gain) on sale		190	(11)	263
Movement in doubtful debt provision		(1)	-	(1)
GWRC overhead charge		816	816	767
Operating expenditure	*3*	6,429	7,202	5,146
Total operating expenditure		**22,003**	**23,304**	**21,605**
Net surplus for the year		**2,001**	**565**	**3,332**

Statement of Movements in Equity

For the year ended 30 June

	2003 Actual $000s	2003 Budget $000s	2002 Actual $000s
Equity as at 1 July	202,087	202,087	198,755
Net surplus for the year	2,001	565	3,332
Total recognised revenues and expenses for the year	**2,001**	**565**	**3,332**
Revaluation reserve movement	-	-	-
Other reserve & equity movements	-	-	-
Equity as at 30 June	**204,088**	**202,652**	**202,087**

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

Statement of Financial Position
As at 30 June

	Notes	2003 Actual $000s	2003 Budget $000s	2002 Actual $000s
EQUITY				
Accumulated funds, including appropriations	*4*	68,315	66,964	66,297
Asset revaluation reserve		135,083	135,083	135,083
Departmental reserve	*6*	690	605	707
Total equity		**204,088**	**202,652**	**202,087**
Represented by:				
NON CURRENT LIABILITIES				
Public debt	*7*	48,106	50,287	52,241
Total non current liabilities		**48,106**	**50,287**	**52,241**
CURRENT LIABILITIES				
Accounts payable		1,891	2,849	2,357
Employee entitlements		587	705	644
Treasury payables	*5*	1,582	716	653
Total current liabilities		**4,060**	**4,270**	**3,654**
Total liabilities		**52,166**	**54,557**	**55,895**
NON CURRENT ASSETS				
Fixed assets	*8*	246,366	247,881	249,311
Investments	*9*	5,828	5,774	5,017
Total non current assets		**252,194**	**253,655**	**254,328**
CURRENT ASSETS				
Accounts receivable		2,616	2,080	2,151
Stocks	*10*	1,432	1,463	1,434
Accrued revenue		12	11	69
Total current assets		**4,060**	**3,554**	**3,654**
Total assets		**256,254**	**257,209**	**257,982**
Total net assets		**204,088**	**202,652**	**202,087**

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

Statement of Funds

For the year ended 30 June

	Notes	2003 Actual $000s	2003 Budget $000s	2002 Actual $000s
FUNDS FROM OPERATING ACTIVITIES				
Funds were provided from:				
Levies received		22,777	22,777	22,777
Interest received		313	344	277
Other revenue		914	748	1,883
		24,004	**23,869**	**24,937**
Funds were applied to:				
Payments to suppliers and employees		12,672	13,652	11,525
Interest paid on public debt		3,794	4,317	4,497
		16,466	**17,969**	**16,022**
Net funds from operating activities	*11*	**7,538**	**5,900**	**8,915**
FUNDS FROM INVESTING ACTIVITIES				
Funds were provided from:				
Proceeds from sale of fixed assets		46	22	58
		46	**22**	**58**
Funds were applied to:				
Purchase of fixed assets		273	276	186
Capital projects		2,365	2,752	3,515
		2,638	**3,028**	**3,701**
Net funds from investing activities		**(2,592)**	**(3,006)**	**(3,643)**
FUNDS FROM FINANCING ACTIVITIES				
Funds were provided from:				
Appropriations / new loans		2,365	2,752	2,080
Transfer from reserves		145	85	1,435
		2,510	**2,837**	**3,515**
Funds were applied to:				
Repayment of public debt		6,500	4,888	7,040
Transfer to reserves		128	43	1,092
Investment additions		828	800	655
		7,456	**5,731**	**8,787**
Net funds from financing activities		**(4,946)**	**(2,894)**	**(5,272)**
Net increase in funds held		0	0	0
Add opening funds brought forward		0	0	0
Ending funds carried forward		**0**	**0**	**0**

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
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 the four Territorial Authority customers.

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

B Measurement Bases
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 Territorial Authorities 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 1 July 1999.

b. Operational land has been valued at the 1999 rating values prepared by Quotable Value NZ.

Work In Progress

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

Stocks

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

Depreciation

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

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

Accounts Receivable

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

Goods and Services Tax

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

Statement of Funding

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 $2.3 million and $2.1 million in 2002/2003 and 2001/2002, 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 SURPLUS, INCLUDING APPROPRIATIONS

	2003 Actual $000s	*2002 Actual $000s*
Balance at 1 July	66,297	62,622
Surplus for the year	2,001	3,332
Transfers to and from departmental reserves	17	343
Balance at 30 June	**68,315**	**66,297**

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

	2003 Actual $000s	*2002 Actual $000s*
Balance at 1 July	707	1,050
Transfer to reserves	128	1,092
Transfer from reserves	(145)	(1,435)
Balance at 30 June	**690**	**707**

The total departmental reserve is made up of a chemical contingency reserve and a general reserve, the latter being held to fund expenditure for a specific item in 2003/04.

7. LONG-TERM PUBLIC DEBT

	2003 Actual $000s	*2002 Actual $000s*
Balance at 1 July	52,241	57,201
New loans	2,365	2,080
Operating cash surplus applied to debt repayment	(6,500)	(7,040)
Balance at 30 June	**48,106**	**52,241**

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 2003 was 7.74%. (8.11% to 30 June 2002). All operating cash surpluses are applied to the accelerated repayment of debt.

8. FIXED ASSETS

2003	*Deemed Cost $000s*	*Revaluation reserve $000s*	*Accumulated depreciation $000s*	*Net book value $000s*
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**

2002	*Deemed Cost $000s*	*Revaluation reserve $000s*	*Accumulated depreciation $000s*	*Net book value $000s*
Land	2,896	-	-	2,896
Water supply infrastructure	122,030	135,083	14,305	242,808
Office equipment	188	-	131	57
Plant & equipment	1,529	-	1,035	494
Motor vehicles	1,064	-	662	402
Work in progress	2,654	-	-	2,654
	130,361	**135,083**	**16,133**	**249,311**

The last valuation of land, buildings and water supply infrastructure assets was performed in 1999, by the appointed registered valuers, Rolle Hilliers. These valuations were stated at either the 1999 rating values prepared by Quotable Value NZ or the depreciated replacement cost as at 1 July 1999. The next asset revaluation will be carried out by June 2004 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

	2003 Actual $000s	*2002 Actual $000s*
Chemical contingency	605	562
Insurance investment	5,138	4,310
General reserve	85	145
	5,828	**5,017**

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 consists of funds now 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 by 30 June 2003 was 7.75 percent (8.00 percent to 30 June 2002).

10. STOCKS

	2003 Actual $000s	*2002 Actual $000s*
Chemicals	111	95
Capital spares	1,321	1,339
	1,432	**1,434**

11. RECONCILIATION OF FUNDS FROM OPERATIONS TO OPERATING SURPLUS

	2003 Actual $000s	*2002 Actual $000s*
Reported surplus	2,001	3,332
Add / (less) non-cash items:		
Depreciation	5,347	5,320
Loss / (gain) on sale	190	263
Total non-cash items	5,537	5,583
Net cash flow from operating activities	**7,538**	**8,915**

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 Wellington metropolitan cities.

Interest Rate Risk

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

Fair Values

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

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

As at 30 June 2003, GW Water has no contingent liabilities that are likely to materialise (nil at 30 June 2002).

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 2003, GW Water had no other significant long-term contractual commitments, other than this office lease (nil at 30 June 2002).

PERFORMANCE INDICATORS

Performance Indicators are shown in standard text. Results for 2002/03 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 for 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'. This would be upgraded to 'A' if chlorine was added to the treated water, although Hutt City Council requested that this should not occur.

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

GW Water holds certification to ISO 9002 for its wholesale water supply operations.

Quality: short-term

By 30 June 2003:

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 the test results show no significant breaches of the Standard occurred during the year.

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 $465,000.

Water testing expenditure for the year was $466,281, which was slightly more than budget because of additional miscellaneous testing requirements.

The Wainuiomata Water Treatment Plant will be re-graded to an 'A' or 'A1' grading by 30 June 2003.

An 'A1' grading was achieved in June 2003.

Vegetation management measures will be carried out in the Council's water supply catchments, in accordance with the Council's Forestry Management Plan and within a budget of $180,000, so that the treatment plants receive good quality water.

Work by Greater Wellington's Regional Park Operations was carried out according to a programme weighted towards the second half of the year. Annual expenditure of $91,671 was incurred against a budget of $180,000. An additional $85,000 for 1080 bait purchase was re-budgeted into the 2003/04 financial year, reflecting the delay in the Kaitoke catchment possum control operation.

A ranger service for the Wainuiomata-Orongorongo Water Collection Area will be obtained from the Greater Wellington's Landcare Division at a cost not exceeding $116,000.

Work by Greater Wellington's Regional Park Operations was carried out according to a programme weighted towards the second half of the year. Annual expenditure of $109,326 was incurred against a budget of $116,000.

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 the Council's water supply infrastructure is sufficient to meet a 1 in 50-year return period event until at least 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 their system is less dynamic in its raw water supply.

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

The Council 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 ML still met.

Security of supply: short-term

By 30 June 2003:

The Orongorongo intakes will be refurbished to accepted engineering standards at a cost not exceeding $200,000.

River conditions precluded this work being completed. Costs for the year were $93,569. The remainder of the project has been deferred until December 2003 with an additional $53,000 budgeted to complete the work in 2003/04.

The standby generator at Waterloo Water Treatment Plant will be upgraded within a budget of $150,000.

The late delivery of the generator precluded its commissioning, which is now scheduled for early September. Expenditure of $140,195 was incurred in the financial year.

Karori Pumping Station equipment will be refurbished to accepted engineering standards at a cost not exceeding $420,000.

As part of the seismic review work, it has been identified that the pumping station is almost on top of the Wellington fault. Instead of refurbishment, work is underway to locate a more secure site for a new pumping station. The refurbishment did not proceed, with only minimal expenditure of $3,590 being incurred in the financial year.

Environmental management: long-term

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

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

GW Water holds certification to ISO 14001 (the International Standard Organisation's environmental management benchmark) for its wholesale water supply activities.

Environmental management: short-term

By 30 June 2003:

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

Annual consent charges for 2002/03 were $53,405. 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 2001/02 will be prepared by 30 November 2002.

The report was published in early November 2002.

Water conservation will be promoted by way of an education campaign during the 2002/03 summer, at a cost not exceeding $70,000.

The final cost of preparing and running a new television-based water conservation advertising campaign slightly exceeded the budget, at $73,513.

Power factor correction equipment will be installed as part of the Karori Pumping Station refurbishment.

This work has been deferred, as the pumping station refurbishment work did not proceed.

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, 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.

Health and safety: short-term

By 30 June 2003:

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

The hazard registers are currently under review. No issues relating to their effectiveness have been identified to date.

Contractor Health and Safety plans are reviewed prior to engagement. Where possible, contractors follow GW Water's procedures and sign a declaration to this effect.

There have been no incidents or accidents relating to contractors' activities reported for the year. However, in the third quarter a near miss incident was investigated and recorded because an electrician received a minor electric shock during the final fit out of the Oxford Terrace offices.

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 2003:

Customers will be provided with a business report by 30 November 2002 which will include the following information:

- Financial results for the 2001/02 year.
- Actual quality compared with targeted performance.
- A list of incidents where supply has been interrupted, together with the time taken to respond and repair.
- A report of compliance with resource consent requirements.

The business report was published in November 2002. It included content on all of the above subjects.

Business efficiency: long-term

To demonstrate a reduction in the operational costs of collecting, treating and delivering wholesale water over time, while maintaining levels of service agreed externally and internally.

The annual costs of running the operation, excluding changes in depreciation rates reduced by $6.1 million or 27 percent between 1997 and 2003, whilst service levels were maintained

Business efficiency: short-term

By 30 June 2003:

Direct operating costs for the wholesale water supply for 2002/03 will be minimised and not exceed the budget of $15,000,000.

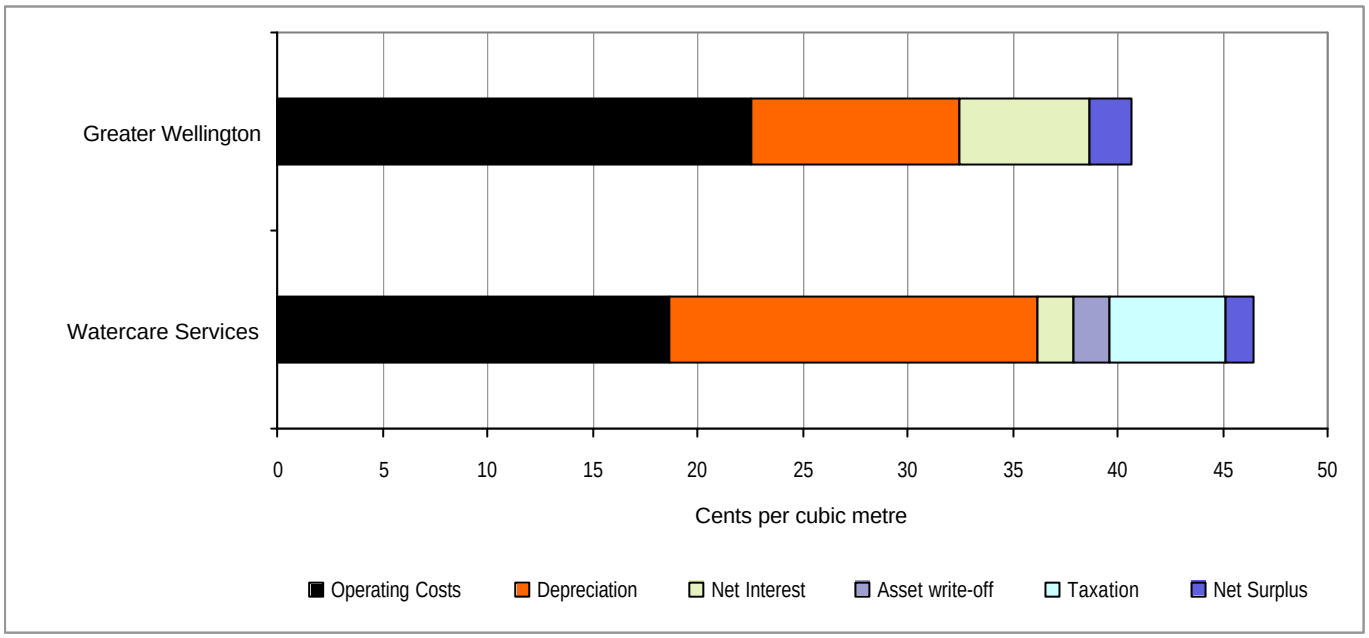
Final full year expenditure of $14,151,700 was incurred whilst carrying out activities according to requirements.

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 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.

Potable Water Supply Costs

For the year ended 30 June 2003



WATER SOURCES

Water Abstraction

For the year ended 30 June

Source	Annual					Maximum Week			Maximum Day		
	Total Ml			Average day ML			Average day ML			Day ML	
			Percent			Date			Date		
	2003	2002	2003	2003	2002	2003	2003	2002	2003	2003	2002
River and stream abstraction											
Kaitoke/Te Marua	29,191	27,102	48.0%	80.0	74.3	4/6/03	121.3	127.7	16/12/02	134.0	132.5
Wainuiomata	5,352	6,270	8.8%	14.7	17.2	18/9/02	28.8	31.5	24/11/02	33.6	37.2
Orongorongo	2,537	2,062	4.2%	7.0	5.6	4/6/03	21.2	18.3	8/5/03	24.6	29.6
George Creek	1,159	1,379	1.9%	3.2	3.8	23/10/02	10.0	6.9	16/10/02	10.6	10.2
Big Huia Creek[1]	1,045	792	1.7%	2.9	2.2	4/6/03	7.2	6.5	28/2/03	9.2	8.5
Total - Rivers	39,284	37,605	64.6%	107.6	103.0	4/6/03	154.2	164.0	16/12/02	180.0	178.4
Public artesian abstraction											
Waterloo	21,327	21,095	35.1%	58.4	57.8	26/3/03	91.5	73.0	22/3/03	101.8	88.1
Gear Island	206	86	0.3%	0.6	0.2	12/3/03	4.3	0.8	9/3/03	16.3	2.7
Total - Artesian	21,534	21,185	35.4%	59.0	58.0	26/3/03	94.8	73.2	10/2/03	111.2	88.1
Total Public Abstraction	**60,818**	**58,785**	**100.0%**	**161.1**	**161.1**	**5/2/03**	**216.0**	**225.8**	**30/1/03**	**233.4**	**251.7**

1: Abstraction at Big Huia was recorded as part of the combined Orongorongo flow up until 21/9/01

Rainfall Levels

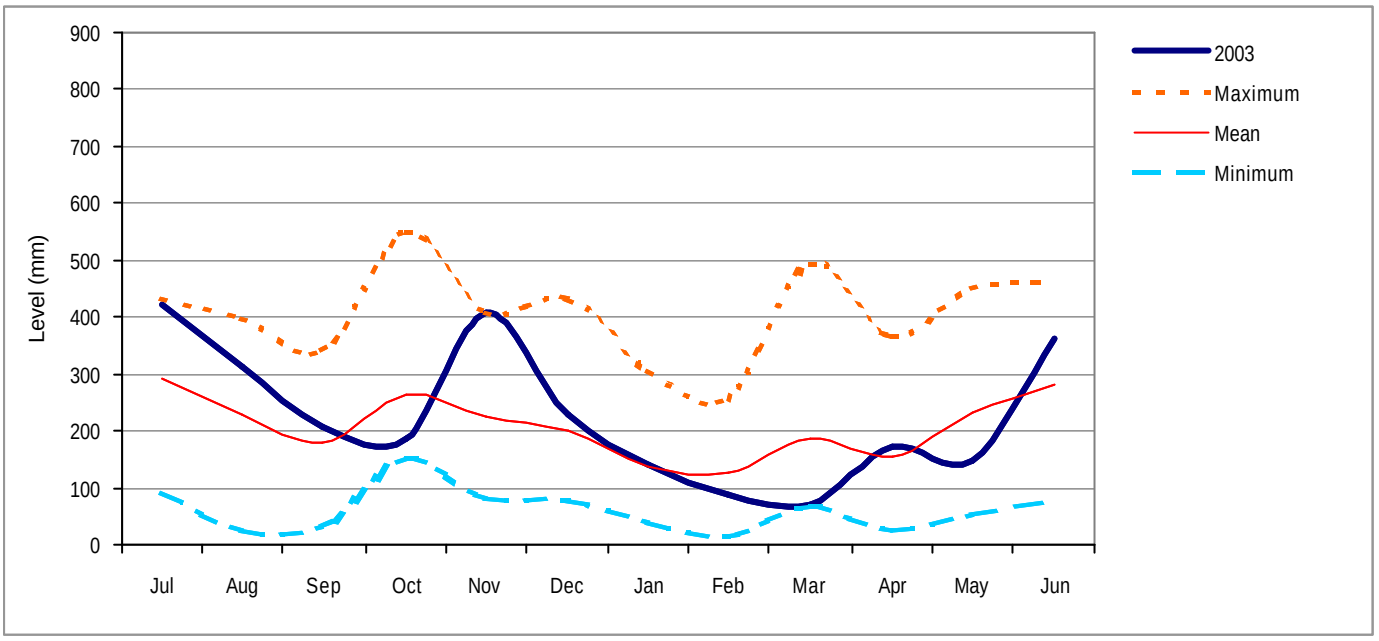
For the year ended 30 June

	Kaitoke[1]	Karori[2]	Orongorongo[3]	Wainuiomata[4]
2002/03	2,539	947	2,747	1,577
2001/02	2,765	1,411	2,541	2,051
Mean	2,872	1,233	2,512	1,924
2002/03:Mean	88%	77%	109%	82%

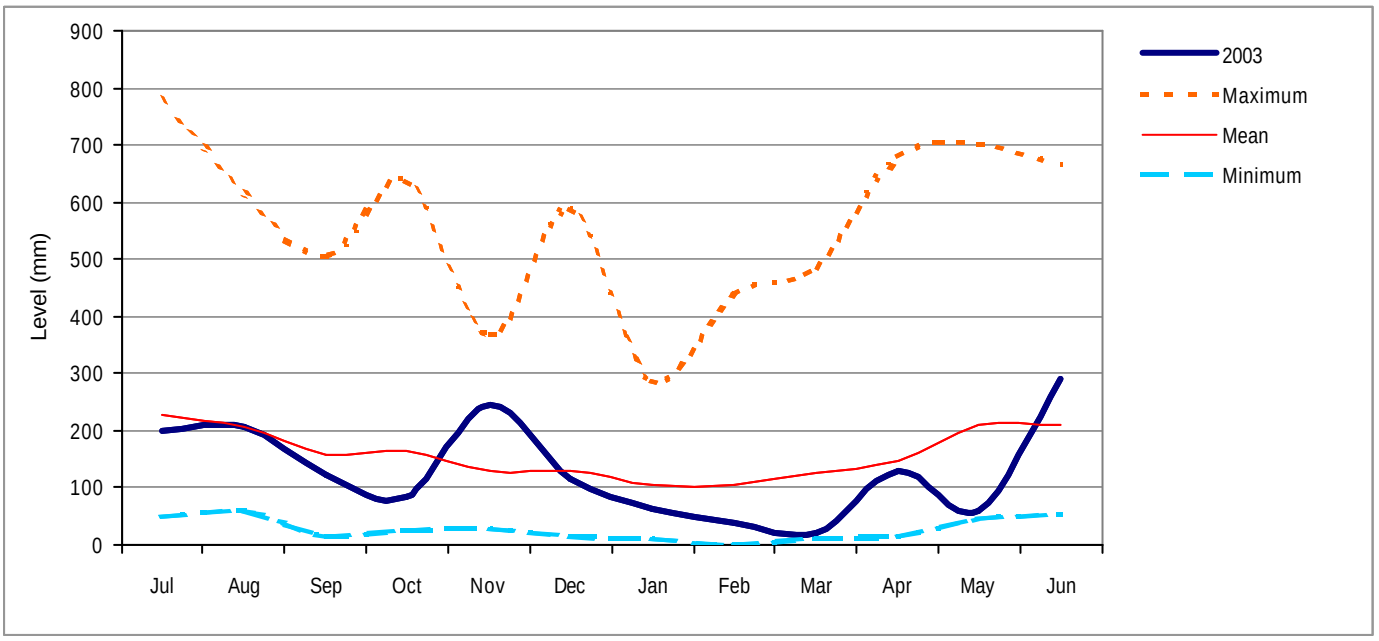
1: Phillips rain gauge. 2: Karori Sanctuary rain gauge (missing data for July, Aug., Dec., Jan. estimated, based on readings at Kelburn). 3: Orongorongo Swamp rain gauge. 4: Wainuiomata Reservoir rain gauge.

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.

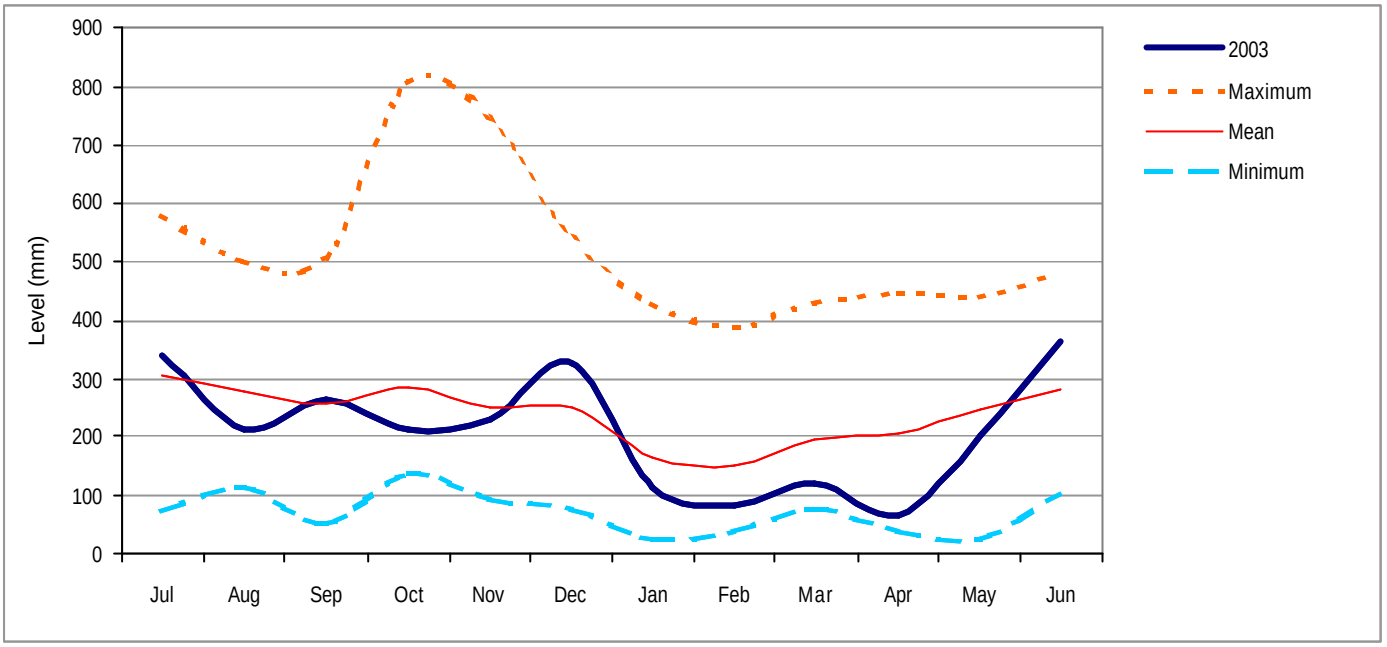
Orongorongo Catchment Rainfall (Record 1980 – 2003)



Wainuiomata Catchment Rainfall (Record 1890 – 2003)



Hutt Catchment Rainfall (Record 1972 – 2003)

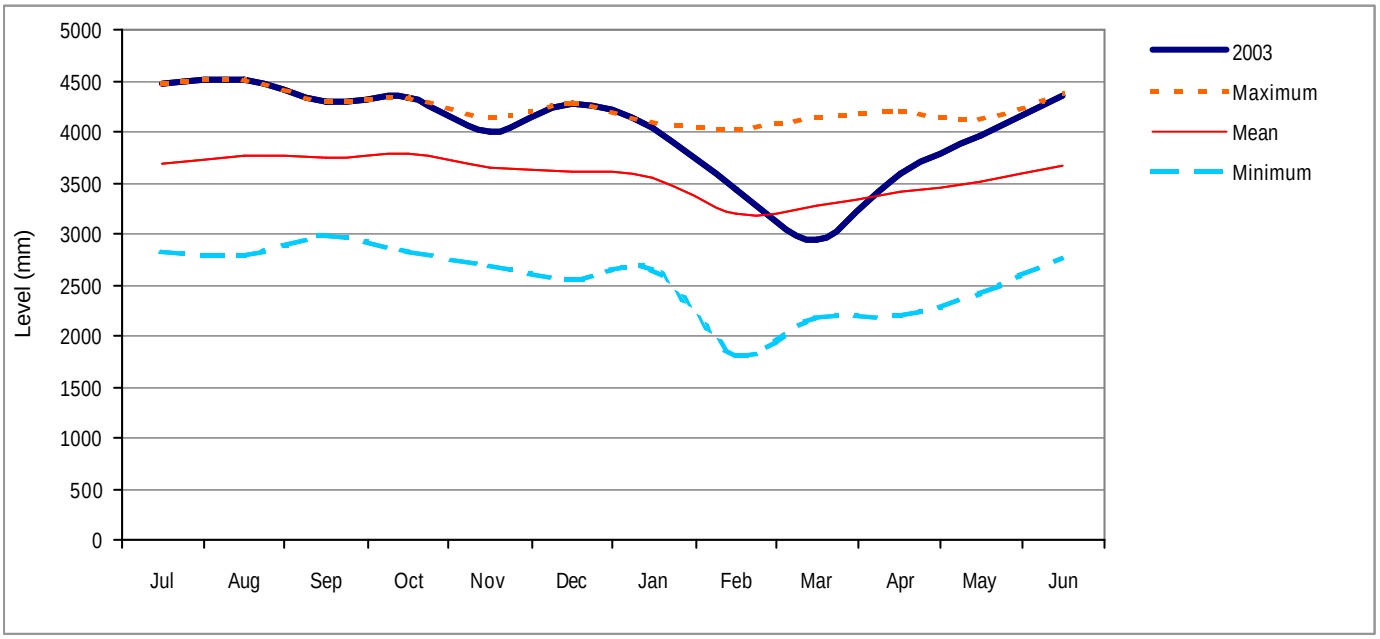


Levels and flows from water sources

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

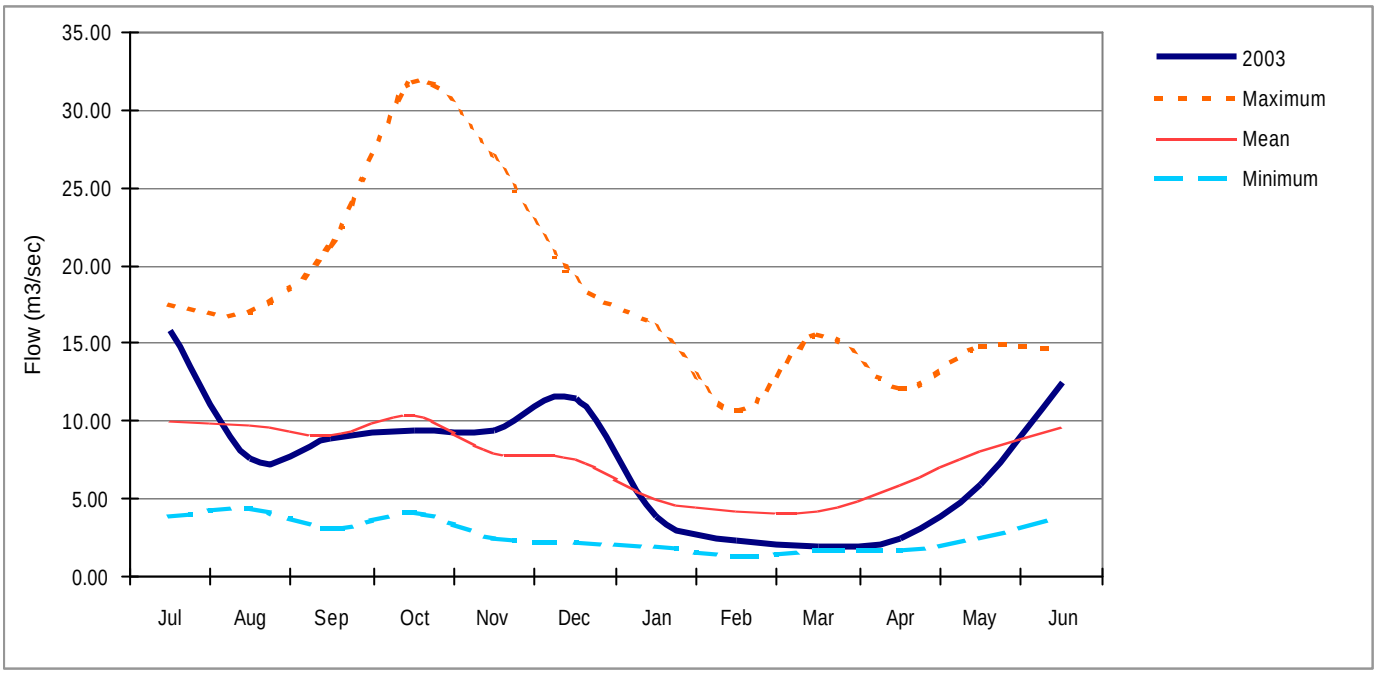
Average monthly level for the year ended 30 June



Data record from McEwan Park 1971-2003

Hutt River

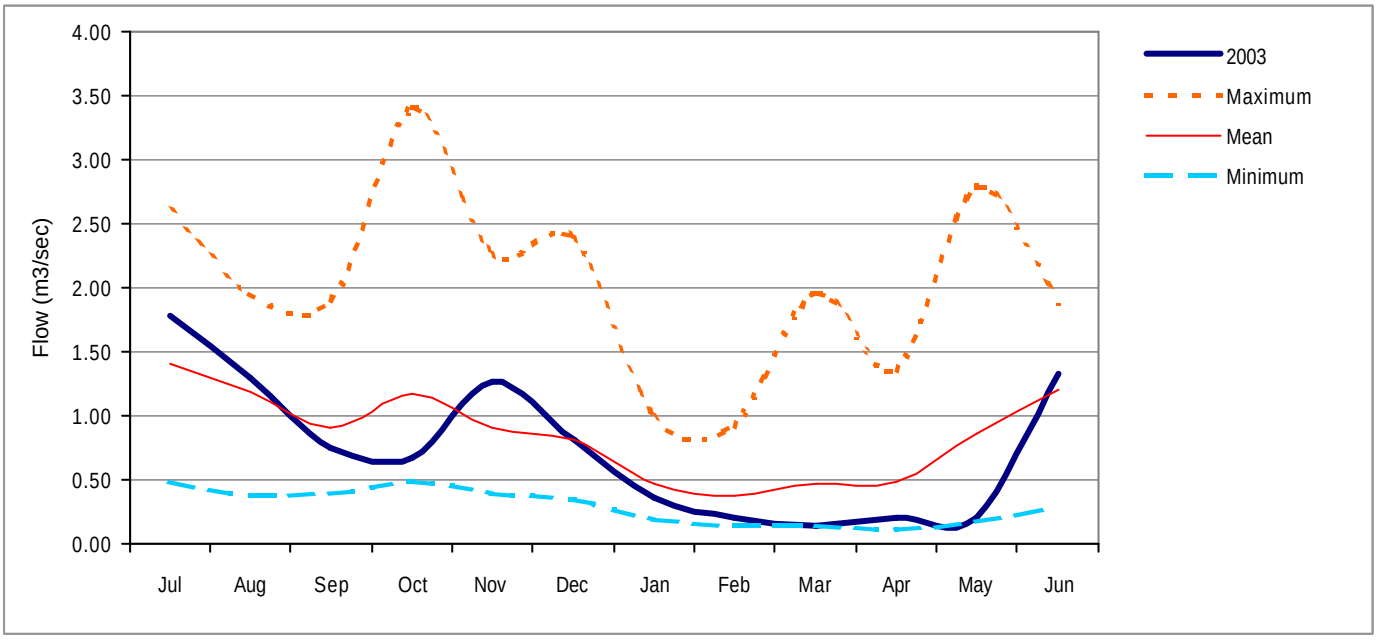
Average monthly flow rate for the year ended 30 June



Data record from Kaitoke 1968 - 2003

Wainuiomata River

Average monthly flow rate for the year ended 30 June



Data record from Manuka Track 1982 - 2003

DISTRIBUTION PIPELINE SHUTDOWNS

There were 68 shutdowns (2001/02 = 66) on the GW Water's regional water supply mains; no loss of pressure or supply to customers resulted.

21 shutdowns were unscheduled, for the repair of leaking or burst mains, or to repack leaking valves, compared with 16, 17 and 33 in the three prior years. All shutdowns were completed and reinstated within eight hours.

The remaining 47 shutdowns were scheduled (2001/02 = 33). This work was required to install new or refurbished pipes and valves (34), remove redundant distribution assets (7) and for safety reasons, to mitigate the risk to third parties working in close proximity to our high-pressure mains (6). All scheduled shutdowns were reinstated in less than eight hours.

RESOURCE CONSENTS

Resource consents held as at 30 June 2003

Water-Take	Water Diversion	Land Use	Discharge	TOTAL
12	4	37	22	**75**

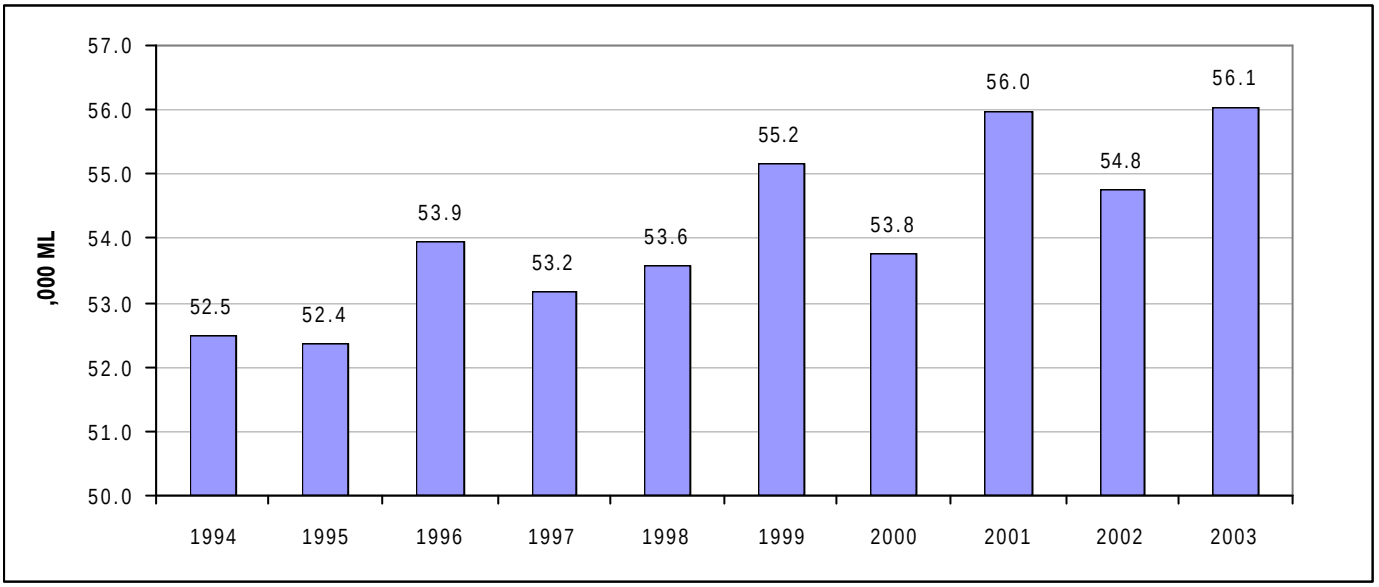
For the year to 30 June we complied with all consent conditions for discharge, land use and water diversion. We received a 'mostly complying' assessment for water take, due to the late delivery of two monthly reports to the consent manager, and because the flow in the Hutt River dropped below the minimum allowable rate downstream of our intake weir for 30 minutes on a single day in February.

WATER SUPPLIED TO CUSTOMERS

Water supply figures are recorded weekly at the supply points to our customers. Annual supply figures 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 and 2000 are based on 366 days.

Water supplied (millions of litres)

For the year ended 30 June



	Hutt City		Porirua City		Upper Hutt City		Wellington City		SUPPLY REGION	
	Total	Avg. day	Total	Avg. day	Total	Avg. day	Total	Avg. day	Total	Avg. day
2003	14,714	40.3	6,135	16.8	5,303	14.5	29,899	81.9	56,050	153.6
2002	14,177	38.8	5,908	16.2	5,774	15.8	28,902	79.2	54,760	150.0
% Change	*+3.8%*		*+3.8%*		*-8.2%*		*+3.4%*		*+2.4%*	
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
1994	14,934	40.9	5,571	15.3	5,166	14.2	26,828	72.7	52,500	143.8

Average daily supply (litres)

For the year ended 30 June 2003

	Hutt City	Porirua City	Upper Hutt City	Wellington City	TOTAL
Population[1]	99,100	49,700	35,800	173,700	358,200
Households[2]	34,659	14,925	13,236	62,733	125,553
Litre/head/day	407	338	406	472	429
Litres/household/day	1,163	1,126	1,098	1,306	1,223

1: Usually resident population – estimated at 30 June 2002 based on 2001 Census. 2: Occupied dwellings – 2001 Census

Supply – maximum week

For the year ended 30 June

	Hutt City	Porirua City	Upper Hutt City	Wellington City	TOTAL
Maximum week 2003	12/2/03	12/2/03	26/3/03	12/2/03	12/2/03
Total of max. wk (ML)					
2003	349.6	147.4	128.2	699.7	1,323.4
2002	324.0	141.6	140.0	610.9	1,216.4
% Change	*+7.9%*	*+4.1%*	*-8.4%*	*+14.5%*	*+8.8%*
Avg. day of max. wk (ML)					
2003	49.9	21.1	18.3	100.0	189.1
2002	46.3	20.2	20.0	87.3	173.8

WATER QUALITY

Chemical monitoring of the wholesale water supply

The health risk due to toxic chemicals in drinking water differs to that caused by microbiological contaminants. It is unlikely that any one substance could result in an acute health problem except under exceptional circumstances, such as significant contamination of the supply. Moreover, experience has shown that the water usually becomes undesirable after such incidents[A] 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.

Mean values of chemical analysis at treatment plants

For the year ended 30 June 2003

	DWS NZ 2000	Te Marua		Wainuiomata		Waterloo		Gear Island	
Parameter	GV or MAV(A)	No. of samples	Value	No. of samples	Value	No. of samples	Value	No. of samples	Value
Alkalinity (total), mg/L $CaCO_3$	-	248	48	51	52	51	65	43	68
Aluminium (acid soluble), mg/L	0.15	12	<0.02	12	0.06	-	-	-	-
Arsenic (total), mg/L	0.01	2	<0.001	2	<0.001	4	<0.001	4	<0.001
Boron, mg/L	1.4	2	<0.03	2	<0.03	4	<0.03	4	<0.03
Cadmium (total), mg/L	0.003	2	0.0003	2	<0.0003	4	<0.0003	4	<0.0003
Calcium (total), mg/L	(B)	4	12	4	21	4	21	4	10
Chloride, mg/L	250	4	8	4	23	4	14	4	15
Chromium (total), mg/L	0.05	2	<0.002	2	<0.002	4	<0.002	4	<0.002
Colour (true), PtCo units	10	50	<5	51	<5	-	-	-	-
Conductivity, µS/cm @ 25°C	-	12	141	12	200	12	191	11	203
Copper (total), mg/L	1	3	0.02	3	0.01	5	<0.01	5	<0.01
Cyanide (total), mg/L	0.08	2	<0.008	2	<0.008	4	<0.008	4	<0.008
Fluoride, mg/L	1.5(C)	250	0.82	240	0.82	485	0.89	94	0.82
Hardness (total), mg/L $CaCO_3$	200	12	38	12	60	12	62	11	40
Iron (total), mg/L	0.2	12	<0.03	12	0.10	12	0.09	13	0.16
Langelier saturation index	≥0	12	-1.1	12	-1.0	12	-0.8	11	-1.3
Lead (total), mg/L	0.01	2	<0.0005	5	0.0034	4	<0.0005	4	<0.0005
Magnesium (total), mg/L	(B)	2	1.3	2	2.1	4	2.7	4	3.9
Manganese (total), mg/L	0.5	3	<0.03	3	<0.03	5	<0.03	5	<0.03
Mercury (total), mg/L	0.002	2	<0.0002	2	<0.0002	4	<0.0002	4	<0.0002
Nickel (total), mg/L	0.02	2	<0.001	2	<0.001	4	<0.001	4	<0.001
Nitrate, mg/L -N	50	2	0.08	2	0.04	4	0.76	4	1.10
Ph	7.0-8.5	248	7.9	50	7.7	51	7.7	46	7.5
Selenium (total), mg/L	0.01	2	<0.001	2	<0.001	4	<0.001	4	<0.001
Silica (molybdate-reactive), mg/L	-	2	8.6	2	11	4	15	4	16
Sodium (total), mg/L	200	4	13	4	13	4	12	4	26
Solids (total dissolved), mg/L	1000	12	91	12	130	12	120	11	130
Sulphate, mg/L	250	4	7.6	4	6.4	4	6.0	4	7.3
Turbidity, NTU	2.5	50	0.12	50	0.42	51	0.64	21	0.48
Zinc (total), mg/L	3	3	0.07	3	0.09	5	<0.03	5	<0.03

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.

Microbiological monitoring of the wholesale water supply

Microbiological contamination of a water supply has the potential to cause sickness within the community. Microbiological monitoring of potable water is carried out in order to determine the safety of the water in relation to the possibility of transmission of waterborne disease. The coliform group of bacteria has been used much more than any other indicator group for monitoring potable water. This group consists of *Escherichia (E.) coli*, which usually comes from faecal material, plus other bacteria derived from non-faecal sources.

Production

At our surface water treatment plants (Te Marua and Wainuiomata) compliance to the *E.coli* criteria of the Drinking-Water Standards for New Zealand 2000 (DWSNZ) is demonstrated by continuously monitoring turbidity on each filter, and free available chlorine (FAC) and pH in drinking water leaving the treatment plants. Turbidity should not exceed 0.5 NTU for more than 5 percent of any 24-hour period, or ever increase by more than 0.2 NTU in any 10-minute period. 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.

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

The Ministry of Health assesses microbiological compliance to the DWSNZ annually, on a calendar year basis. Te Marua Waterloo and Gear Island Water Treatment Plants received microbiological compliance for the year to 31 December 2002, while Wainuiomata Water Treatment Plant was assessed as complying from April 2002 onwards.

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 free available chlorine/pH (for treated water) for the 2003 compliance year to date. (January-June).

Turbidity (NTU) and FAC/pH Compliance

For the 2003 compliance year to date (1 January to 30 June 2003)

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 Water Treatment Plant		Wainuiomata Water Treatment Plant	
		Jan-Mar Qtr	Apr-Jun Qtr	Jan-Mar Qtr	Apr-Jun Qtr
Filter 1	<0.5 NTU	100.00%	100.00%	100.00%	99.96%
	<0.2 NTU Change	100.00%	100.00%	100.00%	100.00%
Filter 2	<0.5 NTU	100.00%	100.00%	99.98%	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%	99.99%	99.98%
	<0.2 NTU Change	100.00%	100.00%	100.00%	100.00%
Filter 5	<0.5 NTU	100.00%	100.00%	100.00%	100.00%
	<0.2 NTU Change	100.00%	100.00%	100.00%	100.00%
Filter 6	<0.5 NTU	100.00%	100.00%	N/a	N/a
	<0.2 NTU Change	100.00%	100.00%	N/a	N/a
Treated	FAC-pH	100.00%	100.00%	100.00%	100.00%

Distribution

Although not presently required under the DWSNZ, Greater Wellington Regional Council's Laboratory monitors the microbiological quality of water in its distribution system after treatment. Total coliforms were sampled up until 11 October 2002, when *E.coli* sampling was adopted, to bring our testing into line with the requirements of the Drinking-Water Standards for sampling urban reticulation systems.

In previous years (and until 11 October 2002) we have reported 'total coliform' sampling results for seven sites intended to represent our distribution system. Under certain circumstances some coliforms can be found in water distribution systems. Any coliform presence had to be treated as indicating the presence of *E.coli* and followed up in accordance with the DWSNZ.

Proposed changes to the Public Health Grading of Drinking Water Supplies and the NZDWS 2000 have resulted in our distribution system being registered in the Register of Community Drinking Water Supplies in New Zealand. The most logical method of doing this was to split our system 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 Water Treatment Plant) and (3) Upper Hutt/Porirua/North Wellington (supply from Te Marua Water Treatment Plant). Samples are drawn from 16 sampling sites within the three zones. Hutt Valley District Health Board's Regional Public Health unit has approved our new monitoring programme.

A summary of results for the twelve months from 1 July 2002 to 30 June 2003 is given below.

Total coliform and *E.coli* results – summary of samples collected
For the year ended 30 June 2003

	Total coliforms (CFU/100mL)			*E.coli*		
Distribution Zone	DWSNZ MAV(D)	No. of Samples	No. of positive results	DWSNZ MAV(D)	No. of Samples	No. of positive results
Central Hutt/Petone	<1	86	0	<1	237	0
Wainuiomata/South Wellington	<1	170	0	<1	211	0
Upper Hutt/Porirua/North Wellington	<1	339	0	<1	299	0

(D) Drinking Water Standards for New Zealand 2000, Maximum Allowable Value (MAV).

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 2002/03 financial year, and (2) additional background information where needed.

Objective 1.1	Provide sufficient water 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 return period		
	Targets	Achievement 2002/03	Comment
Target 1.1.1	Develop new sources, as needed, so that water use restrictions (other than routine watering bylaws) are not needed more than once in 50 years on average	All demand met without restrictions No new water sources developed	GW Water uses a complex supply and demand model (Sustainable Yield Model) to assist with strategic planning. This SYM indicates that there is sufficient water available to service a population of 380,000 to a 1 in 50-year reliability standard. Statistics New Zealand's population projections indicate that this level of population could be reached by around 2020. 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 are yet to be fully proven and work is proceeding on this. Flow rates in the Wainuiomata and Orongorongo Rivers in late summer can be insufficient to keep the Wainuiomata Water Treatment Plant operating. Under these circumstances, unusually high demand could be difficult to meet. Investigation of a small off-river storage facility is planned: this would allow the plant to operate all year round.
Target 1.1.2	Develop and extend the water supply infrastructure to meet customer demand without restriction (other than routine watering bylaws) more than once in 50 years on average	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
Objective 1.2	Maintain the customers' service reservoirs above agreed minimum levels		
Target 1.2.1	Maintain customer reservoirs at least 50% full for 98% of the time and at least 60% full for 90% of the time (target introduced May 2003)	Achieved since May 2003 for all but one reservoir	Reporting from May 2003. Target achieved for all reservoirs except Gracefield (drained for cleaning). Customers' needs for reservoir levels will form part of a proposed wholesale water supply contract, currently under discussion. This target will be modified if necessary once customer requirements have been agreed.
Objective 1.3	Maintain system pressure above agreed minimum levels		
Target 1.3.1	Maintain wholesale supply pressure at Thorndon Pumping Station above 85m for 90% of the time and above 80m and below 100m for 98% of the time (target introduced May 2003)	Achieved since May 2003	Reporting from May 2003. Thorndon pressure between 85m and 100m for 99.3% of time. Supply pressure at Thorndon will form part of a proposed wholesale water supply contract, currently under discussion. This target will be updated once customer requirements have been agreed

Objective 2.1	Comply with the microbiological, chemical and aesthetic requirements of the *Drinking Water Standards for New Zealand 2000*, for water leaving the treatment plants		
Target 2.1.1	Comply 100% of the time with micro-biological requirements of DWSNZ 2000 for water leaving GW treatment plants	Fully complying	Compliance with DWSNZ is assessed on a calendar-year basis. Hutt Valley District Health Board's (HVDHB) Regional Public Health unit certified microbiological compliance for 2002 for Te Marua, Waterloo and Gear Island WTPs; Wainuiomata WTP complied from April 2002. Data for January to June 2003 shows full compliance (see page 34).
Target 2.1.2	Comply 95% of the time with chemical [P2] requirements of the DWSNZ for water leaving GW treatment plants	Complying apart from Gear Island	Compliance with DWSNZ is assessed on a calendar-year basis. Chemical [P2] compliance was received for Te Marua, Waterloo and Wainuiomata WTPs for 2002. Gear Island WTP did not comply, due to a single high fluoride result (2.6PPM against the NZDWS MAV of 1.5PPM) and a technical fluoride transgression because only 12 tests were conducted during the March quarter instead of the 13 required. The missed test is assumed as not complying. The cause of this error has been addressed; we do not expect it to affect the plant's grading.
Target 2.1.3	Comply 90% of the time with the aesthetic requirements of the DWSNZ for water leaving GW treatment plants	DWSNZ requirements to be finalised	Proposed changes to the DWSNZ 2000 that will make aesthetic monitoring necessary for an 'A1' grading were in draft form at 30 June 2003. Monitoring has commenced against the draft criteria and reporting will follow once requirements are finalised.
Objective 2.2	Comply with the microbiological, chemical and aesthetic requirements of the *Drinking Water Standards for New Zealand 2000*, for water in GW Water's distribution system		
Target 2.2.1	Comply 100% of the time with micro-biological requirements of DWSNZ 2000 for water in the GW distribution system	Fully complying	Compliance with DWSNZ is assessed on a calendar-year basis by HVDHB. Microbiological compliance was certified for 2002. Data for Jan.-June 2003 shows full compliance (see page 35).
Target 2.2.2	Comply 95% of the time with the chemical [P2] requirements of DWSNZ 2000 for water in the GW distribution system	Reporting to begin once DWSNZ requirements are known	As at 30 June 2003 there were no reporting requirements under the DWSNZ 2000 for wholesale distribution systems. New grading rules currently in draft form include wholesale distribution systems. A monitoring programme based on the draft criteria for an 'a1' grade has been agreed with Regional Public Health and will be finalised and introduced once the new grading rules are confirmed. The validity of the test method for water aggressiveness contained in the draft has been questioned by GW and its four water customers. We share a concern about the validity of the proposed method for testing water aggressiveness, and are jointly undertaking aggressiveness testing at consumer supply points for comparison of results against those from the proposed method (see page 9).
Target 2.2.3	Comply 90% of the time with the aesthetic requirements of DWSNZ 2000 for water in the GW distribution system	Reporting to begin once DWSNZ requirements are known	As at 30 June 2003 there were no reporting requirements under the DWSNZ 2000 for wholesale distribution systems. New grading rules currently in draft form include wholesale distribution systems. A monitoring programme based on the draft criteria for an 'a1' grade has been agreed with Regional Public Health, and will be finalised and introduced once the new grading rules are confirmed.

Objective 3.1	Add fluoride to the treated water in accordance with Ministry of Health recommendations in the 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 apart from Gear Island	Compliance by treatment plant: Te Marua 98%, Wainuiomata 92%, Waterloo 97%, Gear Island 76%
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 10 August 2003
Target 4.1.2	Carry out condition assessment of assets that have reached 90% of their economic life within 12 months of that event	Initiated	List of assets within two years of their recorded life expectancy prepared by 30 June 2003. Condition assessment of these assets to be completed by 30 June 2004
Target 4.1.3	Replace or refurbish assets before failure reduces levels of service to customers	Achieved	Service levels achieved as per targets 1.2.1 and 1.3.1
Objective 4.2	Practice 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 2.1 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 to be re-valued at 30 June 2004, as per the requirements of *NZ Infrastructure Asset Valuation and Depreciation Guide*
Target 4.2.3	Annual actual direct operating costs do not exceed budgeted value	Achieved	Operating surplus of $2.0M achieved
Target 4.2.4	Consult with the customer territorial authorities regarding the content of annual capital works programmes	Achieved	A presentation of the proposed capital works programme for 2003/04 was made to the customer territorial authorities on 21 May 2003.
Target 4.2.5	Annual capital works programme is completed within budget	Achieved	Budget $2.75M. Actual expenditure $2.36M.
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 $2.75 M. Actual expenditure on major capital works totalled $2,36 M. Cost savings were realised on 20 projects, including four projects where the scope was reduced and 11 projects that were deferred. Additional costs were incurred on 12 projects, including three new projects and three where the scope of the project was increased.
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. Insurance values reviewed during the year (see page 9)
Target 4.2.8	Consult with the customer territorial authorities regarding the content of each proposed annual plan and Long-term Council Community Plans (LTCCPs)	Achieved	The proposed Annual Plan for 2003/04 and annual projections to 2012/13 were presented to the four territorial authority customers during April and May 2003. Their views have been noted.
Target 4.2.9	Achieve unit costs (both total and operating) per million litres of water produced that are comparable with other 'wholesale' suppliers operating under similar conditions		Costs benchmarked with Watercare Services (Auckland) see page 26

Objective 5.1	Te Marua Water Treatment Plant will maintain its 'A' grading and achieve an 'A1' grading by 30 June 2004.	Achieved	'A' grading maintained
Objective 5.2	Wainuiomata Water Treatment Plant will achieve an 'A' grading by 30 June 2003 and an 'A1' grading by 30 June 2004.	Achieved	'A1' grading received in June 2003, after several years of fine-tuning the plant's operation against a background of changing drinking water standards.
Objective 5.3	Waterloo Water Treatment Plant will maintain its 'B' grading, unless Hutt City Council changes its policy of supplying unchlorinated water to Central Lower Hutt, Petone and Eastbourne.	Achieved	'B' grading maintained. Hutt City Council confirmed that it wants to retain an unchlorinated supply to Central Lower Hutt, Petone and Eastbourne.
Objective 5.4	Gear island Water Treatment Plant will achieve an 'A1' grading by 30 June 2004.	Progressed	'B' grading maintained. See page 8 for progress towards A1 grading
Objective 6.1	All three zones within GW's distribution system will achieve an 'a' grading by 30 June 2005 (providing that currently-draft grading rules are confirmed by MoH by 31 December 2003)	Refer to Objectives 6.2 and 6.3	This objective should have been deleted. It was replaced by Objectives 6.2 and 6.3, following our concerns regarding the proposed test method for aggressiveness (see page 9) and uncertainty about maximum turbidity requirements.
Objective 6.2	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 in the DWSNZ 2000)	Progressed	A sampling programme consistent with achieving an 'a' grading under the currently draft grading rules was agreed with Regional Public Health in November 2002. Sampling has commenced. (See page 8) The validity of the test procedure for aggressiveness in the DWSNZ 2000 has been questioned jointly by GW Water and its water supply customers (see page 9).
Objective 6.3	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 in the DWSNZ 2000)	Progressed	A sampling programme consistent with achieving an 'a' grading under the currently draft grading rules was agreed with Regional Public Health in November 2002. Sampling has commenced. (See page 8) The validity of the test procedure for aggressiveness in the DWSNZ 2000 has been questioned jointly by GW Water and its water supply customers (see page 9).
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 in 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 2002/03 financial year, and (2) additional background information where needed

Objective 1.1	Be aware of all legislation, regulations, bylaws and standards that are relevant to the environmental performance of GW Water		
	Targets	Achievement 2002/03	Comment
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	Progressed	These relate mainly to discharges from the distribution system. Discharges are recorded and comply with permitted use rules. (This target was achieved by 30 September 2003).
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	A discharge consent was obtained, in relation to a new wheel wash facility at the entrance to Wainuiomata water collection area.
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. The permit for the Laboratory was transferred from Mabey Road to its new premises at Waterloo, Lower Hutt.
Target 1.2.3	Obtain and keep current all necessary dangerous goods licenses	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	Pending HSNO Act revision	The HSNO Act was under review by parliament at year-end. We await confirmation of the new hazardous substances content.
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	Partially Achieved	'Mostly complying' assessment for water-take consents (see page 4). Full compliance with all other consents.
Target 1.3.2	Carry out and report all monitoring required by resource consents annually, or to timeframes required by consent conditions	Achieved	
Target 1.3.3	Determine and report all monitoring required by hazardous substance legislation, where matters are not covered by resource consents	Achieved	Legislation covering hazardous substances is in transition between the Dangerous Goods Act and the dangerous goods section of the HSNO Act (see EMS Target 1.2.5) We are waiting for the dangerous goods component of the HSNO Act to be confirmed.
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 December 2003	Deferred	The target date has been amended from 30 June 2003. A procedure is in place but needed to be refined further at year-end.
Objective 2.2	Investigate and adopt where reasonable alternative practices or methods that will reduce the environmental impact of an activity		
Target 2.2.1	Adopt policies, procedures and practices to eliminate environmental risk if practicable, or to reduce it to an acceptable level	Achieved	GW Water has risk management plans for its significant activities. Operations resulted in one minor incident at Te Marua, which was dealt with to the approval of Greater Wellington's Pollution Response team (see Emissions and Waste, page 5)

Objective 2.3	For all new projects or activities, consider environmental aspects when choosing between alternatives		
Target 2.3.1	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	Achieved	Comprehensive spillage control measures, including bunding and managed sumps, are in place at all GW'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		Te Marua, Wainuiomata and the Laboratory have trade waste licenses. 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	
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 licenses, issued by their local territorial authority.
Objective 3.3	Adopt policies, procedures and practices that will reduce waste		
Target 3.3.1	Investigate ways of adequately monitoring and reporting waste sludge production by 31 December 2003	Achieved	Sludge volume is reported on page 6
Objective 4.1	Recognise the natural limits of regional water resources		
Target 4.1.1	Promote water conservation by an annual summer campaign to provide information about the need to conserve water and encourage customer TAs to do likewise	Achieved	The Summer Water Conservation Campaign was conducted in conjunction with the Region's four city councils and Kapiti Coast District Council between December 2002 and February 2003. Research from July 2002 showed that most gardeners underestimate how much water is used for gardening, so see little need to use less. The impact of watering on total demand was combined with three key conservation actions from previous campaigns in new advertising for summer 2003.
Target 4.1.2	Monitor and report losses between abstraction, production and supply	Achieved	See Production efficiency page 4, Distribution efficiency, page 7
Objective 4.2	Minimise energy use		
Target 4.2.1	Reduce power consumption per million litres of water produced and delivered by 3 percent 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 2002/03 was 3.4% less than for 1999/2000. (see also Electricity Use, page 4)
Target 4.2.2	Reduce power use during coincident charge (CMD) hours	Maintained	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. (see also Power factor correction and Renewable energy, page 4)
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 are written into resource consents for water take. There were two minor breaches of consent conditions: one for the late delivery of monthly reports to the consent manager and one for an accidental breech of the consented low flow at Kaitoke for 30 minutes
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	Construct a wheel wash facility at the beginning of the access road (to Wainuiomata Water Collection Area) by 31 December 2003	Achieved	See page 6
Target 5.1.4	Complete a feasibility report on whether to proceed with a fish pass over the Orongorongo weir by 31 December 2003	In Progress	The investigation had been completed by 30 June 2003. The report was still to be written.
Target 5.1.5	Complete Stage 2 of the Wainuiomata fencing project by 30 June 2004	In Progress	Stage one was completed during 2002/03. Stage two is budgeted for in 2003/04.
Target 5.1.6	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 (see Fish habitat study and Establishing a wetland, page 6)
Target 5.1.7	Investigate the possibility of (developing) a wetland behind the lower Wainuiomata Dam by 30 June 2004	To Proceed	Investigation to proceed early in the 2003/04 year
Objective 6.1	All recommendations made by the Utility Services Committee 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 GW 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 Environmental Management System	Partially achieved	Two new members of staff joined during the year. Introductory training for one of these employees, who joined in June 2003, was incomplete at year-end. The need for a formal procedure for signing-off that the appropriate level of environmental awareness training has been given to new staff members has been identified and will be addressed in the coming year.
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 suppliers 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	
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	The Water Group's Report of Business Activity 2001/02 was published by 30 November 2002.

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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.