Water Supply Annual Report

FOR THE YEAR ENDED
30 June 2014

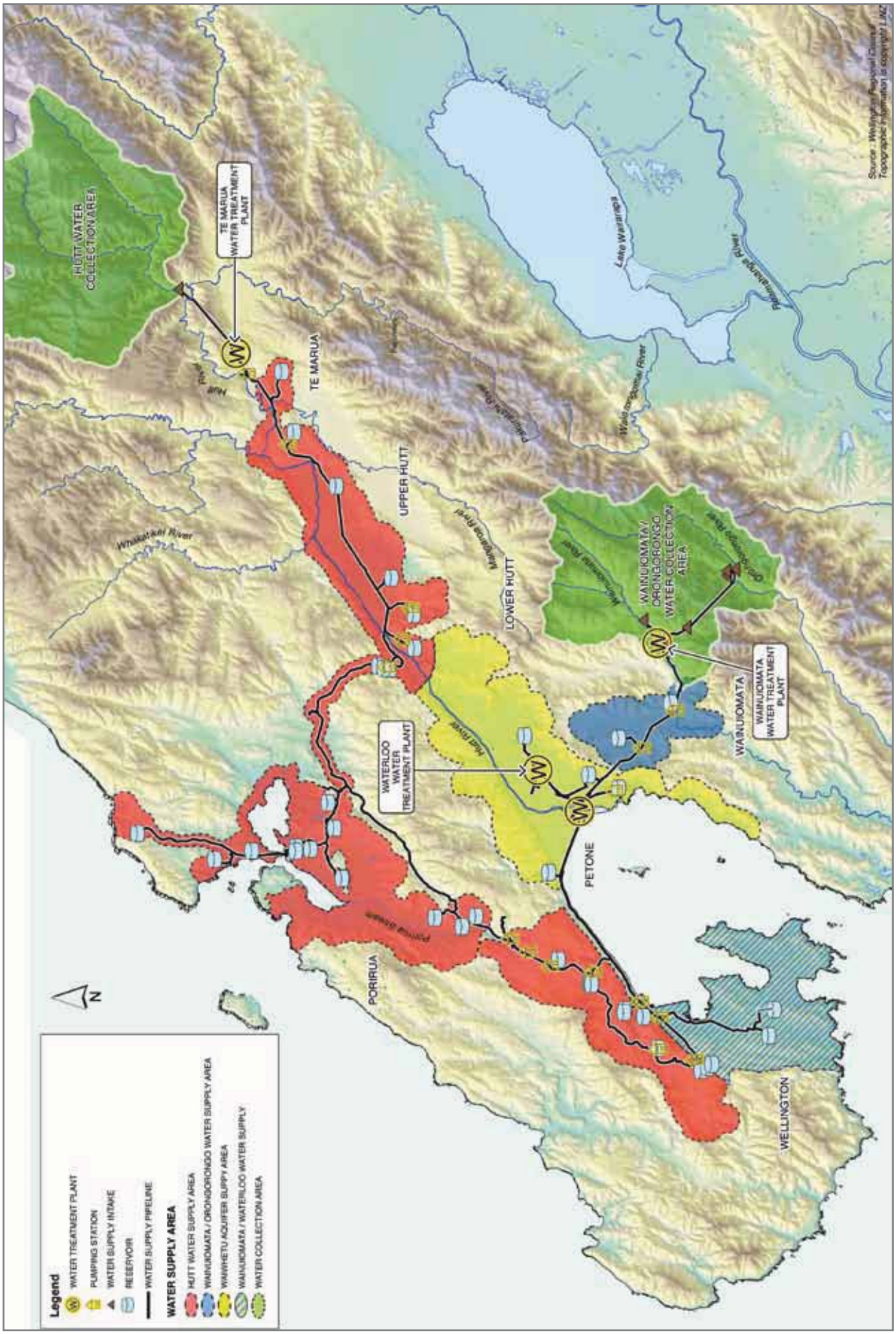
greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

Contents

Cover

Seismic strengthening work being carried out in the motor hall of the Waterloo Water Treatment Plant

Greater Wellington Regional Council's bulk water supply network map



Introduction

Reporting scope

This report covers the Greater Wellington Regional Council's (GWRC's) bulk water supply activity for the year ended 30 June 2014.

The GWRC's main annual report meets its statutory reporting requirements under the Local Government Act 2002. This report is supplementary to the statutory annual report and provides our customers and the community with a more detailed account of our bulk water supply operation.

The commentary on p4-21 reflects significant achievements and challenges in relation to our business objectives and performance targets.

Our objectives cover quality and quantity of supply, system security (risk), environmental responsibility, asset management, business efficiency, and health and safety. We have summarised our results for all annual targets for 2013/14 on p30-36.

Our purpose

We aim to provide a continuous and secure supply of safe, high-quality water in a sustainable and cost-effective way. We also aim to meet the reasonable water needs, both current and future, of the people in our region's four cities.

What we do

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

- Operate four water treatment plants, 17 pumping stations and 183km of pipeline
- Supply about 140 million litres of water daily on average, to meet the needs of public services, industry, commerce and almost 400,000 people
- Target at least an "A" grade quality standard for our water treatment plants and distribution system, where consistent with customer requirements
- Forecast future water needs and plan so those needs can be met at an acceptable cost to the community
- Carry out our work with care for the environment, including promoting ways to conserve water and the benefits to the public of water conservation
- Manage assets with a book value of $468 million

Governance and organisation structure

The Wellington Regional Water Board Act (1972) defines GWRC's bulk water supply role. GWRC is responsible for setting policy.

The Regional Council's Strategy and Policy Committee oversees the work carried out by its Water Supply Group to manage the bulk water supply.

Within the Water Supply Group are six departments that share this workload:

- Assets and Compliance
- Engineering and Projects
- Finance and Support
- Marketing
- Operations and Controls
- Pipeline and Mechanical Maintenance

Other groups within GWRC provide services to Water Supply. The Environment Management and Catchment Management groups provide water-catchment management services, which include pest monitoring and control. The Water Supply Group contracts out water quality testing services and some construction and maintenance work.

Performance indicators

GWRC's 10-Year Plan 2012-22 and Annual Plan 2013/14 group performance indicators and targets for bulk water supply under three main activities: water availability, water quality and sustainability. We have cross-referenced reporting of annual targets with these three main activities, from p32.

You can view the 10-Year Plan 2012-22 and Annual Plan 2013/14 on the GWRC website or you can contact us for a copy (see back cover for contact details).

Management systems

We operate management systems for assets, compliance and monitoring of water quality, environmental effects, health and safety, public health risk, projects and maintenance. We hold quality-management system certification to international standard ISO 9001:2008 and environmental-management system certification to international standard ISO 14001:2004.

Chairperson's report

Water is essential for the health and wellbeing of communities, so the Council's Water Supply Group takes very seriously its role to deliver a reliable, high-quality and efficient water service. The cities of Lower Hutt, Porirua, Upper Hutt and Wellington are all supplied water by Greater Wellington Regional Council and we know that this supply underpins a strong regional economy, a healthy environment and a good quality of life for our residents.

Increasing resilience to natural disasters

The earthquakes that shook Wellington in July and August 2013 underlined the importance of being ready to recover quickly should a natural disaster occur. In the past two years, seismic assessments have been completed for most of our water supply buildings and above-ground structures and work has begun to earthquake strengthen these. This extends a programme to make the bulk water network more robust and has seen investment in excess of $20 million.

During the year we also completed a study of the feasibility, capacity and cost of an emergency storage lake close to Takapu Road, near the suburb of Tawa. More work is required to determine the final configuration of what is built, but the site could potentially store between 200 and 680 million litres of water. In the event of a rupture of the main Wellington fault, this storage would enable water supply to be restarted more quickly to Porirua and Wellington suburbs west of the fault.

"While a cross-harbour pipeline is feasible, it would be expensive"

Another feasibility study completed this year examined the possibility of a pipeline across Wellington Harbour to supply the parts of Wellington City east of the fault from the Wainuiomata and Waterloo water treatment plants. Bulk mains delivering water to Wellington's CBD and beyond it currently cross the Wellington Fault several times and also pass under the CBD, where widespread damage is expected in a large earthquake. The study has shown that while a cross-harbour pipeline is feasible, it would be expensive. An alternative option may be the construction of emergency treated-water storage reservoirs, which will be investigated later in 2014. An emergency water supply strategy will be part of the Council's Long-Term Plan 2015-25, which we will be taking to the public for consultation later in the year.

Future-proofing and planning for change

Consideration of the impact of climate change is also an important factor when determining future water storage requirements and we are taking this into account in our modelling.

"The need for a new water source has been deferred to 2035"

A report on the Waiwhetu Aquifer was completed this year, which improved our understanding of the behaviour of the aquifer and allowed better modelling of how much water can be extracted safely. The results were added into our sustainable yield model for the whole bulk water network. The sustainable yield model looks at the capability of the current water supply system and allows the impacts of future changes to be assessed, including in population, rainfall river flows, resource consent limitations, the design of the bulk water network and the demand for water.

In recent years there has been a steady reduction in water use per head of population in our region. This has been a most welcome trend and, combined with the updated modelling, has deferred the anticipated need for a new bulk water source by 15 years, from 2020 to 2035.

Considering the updated timeline, but also recognising that elements such as demand and growth remain uncertain, we are taking an adaptable approach. Over the past two years, the storage volume of the Stuart Macaskill Lakes has been increased and because additional storage will be required in the longer term, we have secured land that we can use for that purpose near the Stuart Macaskill Lakes site.

As far as possible, costly large-scale infrastructure projects will be deferred. Planning for a range of smaller-scale developments will allow more flexibility in responding to changing circumstances and help GWRC better manage its debt.

A new era for water in Wellington

In June, the Regional Council made a decision to join with our four city customers to run the bulk water and retail water supplies as one network. The company the cities currently use (Capacity Infrastructure) will be renamed and we will become a shareholder. The newly named company will manage all water services (water collection and treatment, distribution, stormwater and wastewater) in the Wellington metropolitan area of Porirua, Upper Hutt, Lower Hutt and Wellington City. The Regional Council will still own all its bulk water assets and set costs and levels of service in consultation with the community.

"The Water Supply Group has done an incredible job"

While this is the right step for the region, it is the end of an era of bulk water supply being managed by the Regional Council. Since taking on the bulk water responsibility in 1980, the Water Supply Group has overseen the transition from basic "strain and chlorinate" treatment to modern "high-tech" treatment plants producing reliable, high-quality water. The Group introduced significant process innovation, invested in best-practice systems and technology while at the same time reducing costs and public debt.

The Water Supply Group has done an incredible job of managing the delivery of bulk water in an economical and efficient way and has provided a hugely valuable service to ratepayers in the Wellington metro area. It is expected that this will continue in the new combined company, with a focus on strong service delivery and a regionally strategic vision for water resources and infrastructure into the future.

Fran Wilde
Chair, Greater Wellington Regional Council

General Manager's report – the year in review

The year under review was another busy one for the Water Supply Group. Increasing our ability to respond to natural disasters and climate change, as well as ensuring security of water supply into the future for residents in the four cities, has been at the forefront of our work.

Earthquakes

In mid-2013, a series of earthquakes shook the Wellington region and, as planned, various automatic safety processes were activated. Among these were the isolation of the Stuart Macaskill Lakes and the switching to bypass mode of the Ngauranga Reservoir. Both of these critical water-storage assets were back in service shortly afterwards once inspections and systems checks were completed satisfactorily. Our water treatment plants and all critical points of the bulk water network were also inspected and no damage was found.

"We're focused on building greater resilience in our network"

The fact that our bulk water supply infrastructure came through these events unscathed points to the worth of our work over many years to systematically improve the robustness of the network. Much of the work we completed this year is part of our focus on building even greater resilience within the network – whether that be upgrading infrastructure or planning for future events such as earthquakes and climate change. Fran has touched on a number of these projects in the Chair's report, such as the purchase of land at Kaitoke for future water storage lakes and the feasibility studies in the cross-harbour pipeline and emergency water storage lakes. More information on these projects can be found in the main body of this report.

Shift to Petone

One impact of the earthquakes was to bring forward a change in our accommodation. We had already been looking at alternative accommodation that would allow the Water Supply Group to be located together in a seismically secure building. Previously some staff had been located at our Waterloo office and some in our Head Office in Wellington's CBD. The earthquake hastened the regional council's move out of the office in Wellington, and saw the Wellington-based Water Supply staff squeezed into our Waterloo site ahead of the shift to our current office at Petone in October.

The move to a new office has had several positive impacts that have resulted in better quality outcomes for our business. Bringing together previously isolated teams has increased collaboration and exchange of ideas, and improved the coordination of project work. Staff are enjoying the new environment, which is busy, fun and I think, more productive.

Annual plan – focus on resilience

With our latest modelling showing the need for more water supply capacity has been pushed well into the future, our focus in the coming years will be primarily on resilience projects such as providing for emergency water in the event of a major earthquake.

Strong public support for our plan to continue with building resilience was expressed through feedback we received during consultation on the Regional Council's Annual Plan this year. Many submissions mentioned that a focus on resilience in the water supply network should continue, especially in light of recent earthquakes and the potential effects of climate change.

"Bringing our staff together in one office has increased collaboration"

Open days at Te Marua and Wainuiomata

Over the past year we held two open days at our water treatment plants – one at Te Marua and one at Wainuiomata. Both were very successful with 365 people, from a wide cross-section of the community, taking the opportunity to visit. As one of the tour leaders I thoroughly enjoyed talking to people about what we do and was really impressed

at the questions we were asked and the level of interest shown. The feedback that I received from those on the tours showed that most people are unaware of what is involved in the collection, treatment and distribution of water. Visitors were particularly surprised at the level of technology used and the sophistication of our control systems. Given such interest we intend to continue the tours through 2014/15.

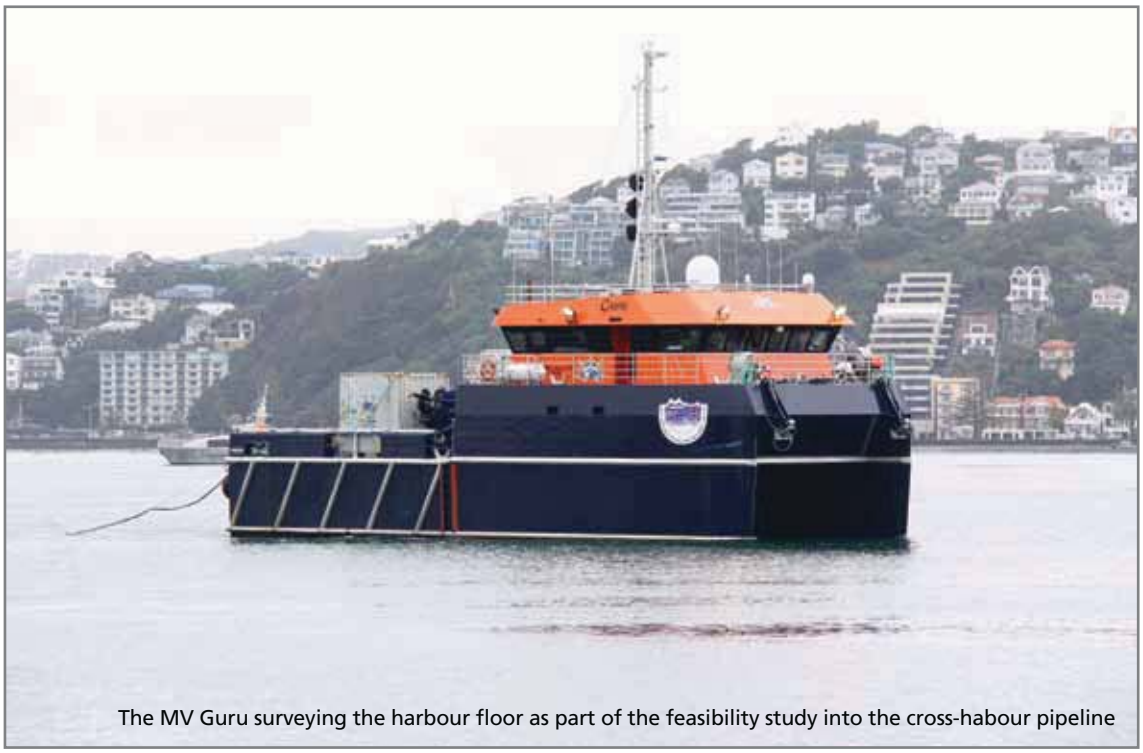
A new future

Recently a decision was made to merge the Water Supply Group with Capacity Infrastructure, which currently manages the local water distribution, stormwater and wastewater networks for Lower Hutt, Porirua, Upper Hutt and Wellington. This new model will provide integrated management and planning of water from source to sea and bring new opportunities for water supply in the region, especially around regional development and collaboration.

"We're looking forward to building a world-class organisation"

We are proud of the performance of the Water Supply Group over many years and we're looking forward to combining our expertise and experience with that of Capacity to build a world class water organisation that provides a high level of service to the community.

Chris Laidlow
General Manager, Water Supply



The MV Guru surveying the harbour floor as part of the feasibility study into the cross-habour pipeline

The following pages cover GWRC's major water supply projects and key performance outcomes for 2013/14. Information is grouped by our main business activities and objectives:

1. Water availability – providing a secure and reliable water supply
2. Water quality – providing water that is safe and pleasant to drink
3. Sustainability – ensuring that the water supply infrastructure is adequate to meet future needs and being cost-effective, while minimising environmental impacts

Where applicable, a reference to relevant objectives and targets follows each project and performance measure. We have listed our objectives and targets in full, with links to the relevant content from GWRC's Long-Term Plan 2012-22, from p30.

Continual improvement is a key aspect of our operating philosophy and our adoption of ISO management-system standards provides a strong focus on this process. We identify improvement opportunities through routine monitoring of our performance targets. Improvement options are assessed by their value in relation to one or more of our business objectives, and prioritised accordingly.

WATER AVAILABILITY

Objective: Provide a secure and reliable water supply

Community outcome contribution: resilient community and strong economy

In mid-2013, a series of large earthquakes shook the Wellington region – the largest of which were magnitudes 5.2 on 21 July and 6.6 on 16 August. While the bulk water supply network came through the shaking unscathed, the earthquakes did serve as a reminder of the importance of having a robust and resilient water supply network.

OPTIONS FOR EMERGENCY WATER SUPPLIES FOR WELLINGTON AND PORIRUA

(Improvement project 1.10)

Work has continued on developing an updated emergency water supply strategy for Porirua and Wellington. In 2012, the Wellington Lifelines Group presented a report[1] showing that estimated restoration times to return water to consumers after a rupture of the Wellington fault would likely result in significant shortages in central Porirua and in Wellington suburbs to the south and east of the CBD.

1 Based on the GNS study *Wellington Without Water*

Last year we reported that two options that could help to provide a "survival[2]" level of water for Porirua and Wellington had been identified for further work: covered emergency water storage and a pipeline across Wellington Harbour.

A detailed feasibility study of a covered water storage lake on Landcorp land near Takapu Road (on the Porirua-Wellington border) has been completed.

Geotechnical studies suggest that there may be a fault crossing the site (i.e. linear ground forms suggest the possible presence of a fault line). Although the existence of the fault has not been confirmed, consultants have suggested that building two lakes, one either side of the suspected fault, would avoid any direct effect from its movement. Appropriate design standards would be adopted to mitigate the "near-fault" risks.

Enough water for a survival level of emergency supply for Wellington and Porirua – conservatively estimated as 200 million litres (ML) – could be accommodated in a single lake. As much as 680 ML could be stored in two lakes (340 ML in each). Storage of more than 200 ML would allow some of the water to be used during lesser emergencies such as very dry summers. The cost would range from $20 to $46 million, depending on the size and number of reservoirs built.

In order for storage at Takapu to provide a reliable supply to Wellington following a large earthquake, the resilience of the Kaitoke-to-Karori bulk water pipeline between Takapu and Karori would be upgraded, by reinforcing the joints. This work could cost $30 – $40 million, as a significant portion of the pipeline is located in the Johnsonville-to-Porirua section of State Highway One.

While the Takapu Road emergency storage lake could supply the northern and western suburbs of Wellington, getting water to the CBD and beyond would be more difficult as both of our bulk supply pipelines cross the fault again at Karori or Thorndon, where further damage is expected to occur. Recovery times for a regular water supply to Wellington's southern and eastern suburbs are estimated at up to 70 days.

The option of supplying emergency water from the Hutt Valley or Wainuiomata to Wellington via a pipeline across the harbour has also been explored this year.

A feasibility study into the cross-harbour pipeline was completed and while this study reported that such a pipeline is feasible, it will be quite expensive. A range of pipe sizes was looked at and a 600mm diameter pipe was recommended. A pipeline at this size could also provide a supplementary or alternative supply to central, southern and eastern Wellington during normal operation, or during maintenance of our existing pipeline. The initial cost of this option is estimated to be $92 million.

The cross-harbour pipeline could be supplied with water from either the Waterloo wellfield or the Wainuiomata Water Treatment Plant. However, in both cases, improvements to existing pipelines would be required to ensure that water would be available within a few days of a disaster occurring.

We're now also investigating an alternative to the cross-harbour pipeline – emergency treated water storage ponds in Miramar. Two possible sites for such storage ponds have been identified (Mt Crawford and Palmer Head) and these will be investigated further early in 2014/15.

In the coming year we will be working with Wellington City Council to explore which of these emergency bulk supply options provides the best match with their needs, to ensure the required volumes of emergency water are available in the right places within the city at the right time. An updated emergency water supply strategy will be included in the Regional Council's 2015-25 Long-Term Plan.

2 The Wellington Regional Emergency Management Office defines "survival" water as a minimum of 20 litres per person per day in a major emergency for drinking, cooking and hygiene for as long as the water supply isn't working

BULK WATER SUPPLY DEVELOPMENT STRATEGY

(Improvement projects 1.6 and 1.7)

Twelve months ago, we reported that the Regional Council had agreed to pursue a flexible and incremental approach to developing future bulk water sources. This approach recognises the many uncertainties underlying long-range forecasting and gives the region choices in the scale, location and cost in the next stage of bulk water development. Recent events have underlined the value of flexibility.

The likely date for when the next stage of bulk water source development would be needed has been recently been revised.

During 2013, we commissioned a consultant to further research the characteristics and behaviour of the Waiwhetu Aquifer and to clarify how much water could be extracted safely within the current consent conditions. The results of this investigation have now been incorporated into our Sustainable Yield Model (SYM).

The SYM is a complex computer model that incorporates 118 years of rainfall records and river flows, resource consent limitations, details of the bulk distribution network and the demand for water. It allows the capability of the existing water supply system to be modelled, as well as future scenarios incorporating increases or decreases in population and demand and the addition of new sources of water.

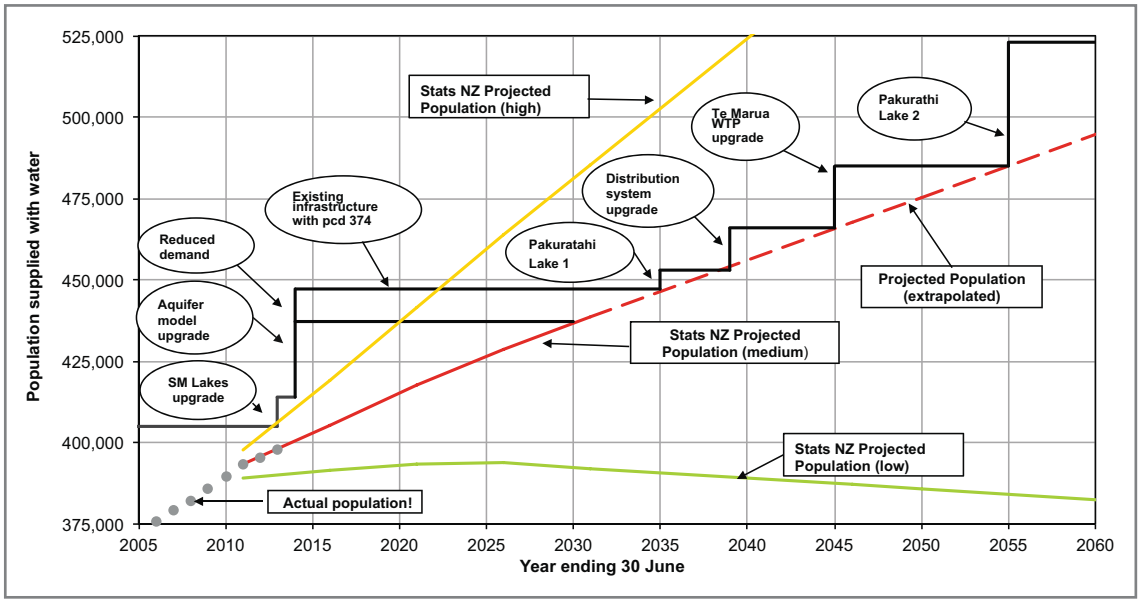
We've also updated the SYM to reflect a lower level of water use "per person" that has occurred over recent years. This, combined with the updated aquifer component of the model, has seen the population that our present network can reliably supply with enough water in most years rise from 414,000 to 447,000 people.

Based on Statistics NZ 2012 medium-growth projections (the latest available), a population of 447,000 for the four cities in our supply area would be reached about 2035. The previously estimated Sustainable Population of 414,000 will be reached about 2020. These results mean that the likely date for developing a new bulk water source has been deferred by 15 years.

While the currently-projected 15 year deferral of the need for a new bulk water source is welcome, we have continued to work on options for the additional sources of water so that we are fully prepared should this outlook change.

Last year we reported that a feasibility study was to be carried out into the possibility of building off-river raw water storage lakes at the eastern end of the AgResearch Farm at Kaitoke. This feasibility study has been completed and showed that up to 3,000 ML of untreated water could be stored at this site, in two lakes. Building the first of these lakes (Pakuratahi Lake One), along with capacity upgrades to the bulk distribution network and the Te Marua Water Treatment Plant, would provide adequate water for a population of 485,000 – which is projected to be reached by 2055. The cost for this work is estimated to be around $100 million.

DRAFT DEVELOPMENT STRATEGY TIMELINE



Projection of bulk water development timing, reflecting a flexible and incremental approach to maintain our security of supply standard as agreed with our city council customers

The western (Te Marua) part of the AgResearch Farm has already been investigated and a large single lake (approximately 5,000ML capacity) is feasible there. The 202 hectare block of land has now been purchased, with the potential of 8,000ML of water storage in three lakes of differing sizes safeguarding our future water source options at Kaitoke.

An updated water source development strategy will be included in the Council's 2015-25 Long-Term Plan.

SEISMIC PERFORMANCE OF WATER SUPPLY BUILDINGS AND STRUCTURES

(Improvement projects 1.8 and 1.9)

We've made significant progress in completing the seismic assessments of our water supply buildings and structures and the remedial construction work has begun.

The assessments were commissioned to determine the level of compliance with the 2002 building standard (AS/NZS 1170). Full compliance with the standard will help to ensure that our water supply operations recover quickly following a major earthquake.

A prioritised list of water supply buildings to be assessed was drawn up in 2011, with the water treatment plants at Te Marua, Wainuiomata and Waterloo identified as top priority. During 2012/13, SKM was commissioned to assess the seismic strength of the Te Marua, Wainuiomata and Waterloo water treatment plant buildings and to develop the detailed designs to bring any underperforming structural elements up to the required standard. This design work was completed in 2013. The construction work is due to be completed by November 2014.

A further 15 water supply buildings and structures were assessed this year with the remaining due to be assessed by the end of December 2014.

The structural reports include the options for upgrading any underperforming elements to as close as practical to 100% of the 2002 building standard, opinions as to any likely disruption to water supply operations during the upgrading work, as well as estimates for any remedial design and construction work.

The physical work required to upgrade the remaining water supply buildings and structures will then be prioritised for completion.

FILTER FLOW CONTROLS AT THE TE MARUA WATER TREATMENT PLANT

(Improvement project 1.5)

We are part of the way through a two year project to improve the flow controls on the filters at the Te Marua Water Treatment Plant.

Four of the six filters have had their pipework, valves, fittings and wiring upgraded this year (the remaining two filters are to be upgraded in July 2014). The programming and commissioning work on all six filter controls have been programmed for completion during the next financial year.

We're upgrading the Te Marua Water Treatment Plant filter flow controls to a) improve our ability to reliably achieve the full rated flow of water (140ML/d) through the filters to the Treated Water Reservoir and b) enable water to be diverted directly to waste if it doesn't meet the drinking water standards.

New and larger valves have been installed leading from each filter bed to the Treated Water Reservoir, giving greater control over both high and low flows through the filters.

The original valves from each filter bed have been repurposed and installed to act as a valve between the filter and the waste outlet. This is in case of the very rare occasion that there is an issue with either the raw water coming into the plant or with the chemical dosing during the treatment process and we need to divert this water from the filters to the wastewater system. Before the upgrade, it would take up to 24 hours to remove all of this water (during which time the Te Marua Water Treatment Plant would need to be staffed continuously, resulting in significant use of staff resources). Once the upgrade is complete, it will take less than 6 hours.


Waterloo Water Treatment Plant

WATER QUALITY

Objective: Providing water that is safe and pleasant to drink

Community outcome contribution: quality of life

FULL QUALITY COMPLIANCE ACHIEVED AGAIN

(Annual performance target 1.3.1)

We achieved full compliance with New Zealand's drinking water standards. This includes the microbiological, chemical and aesthetic requirements for water leaving our water treatment plants and in our bulk water distribution network.

TOP TREATMENT AND DISTRIBUTION GRADINGS MAINTAINED

(Annual performance target 1.4.1)

We maintained an "A1" grading for our Gear Island, Te Marua and Wainuiomata water treatment plants – the Ministry of Health's highest possible endorsement for drinking water.

Our Waterloo Water Treatment Plant, which provides the water supply for most of Lower Hutt, is graded "B", due to Hutt City Council's preference to receive un-chlorinated water. The addition of chlorine, to reduce the risk of contamination affecting the water in pipe networks, is needed to get an "A" or "A1" grading.

We've also maintained an "a1" grading for each of our three bulk water distribution pipeline zones – the highest distribution grading possible.

WATERLOO WELLFIELD AND IRON BACTERIA

One of the eight wells that supply the Waterloo Water Treatment Plant has been out-of-action since October 2011, due to unusually high turbidity[3].

We've identified that this turbidity is related to the presence of iron bacteria in the well. While this naturally-occurring organism is not harmful to humans, the water from this well doesn't meet the New Zealand Drinking Water Standards. The Waterloo Water Treatment Plant usually operates with six wells so having one well out-of-action has not limited production, but does affect resilience.

A commonly used method to treat iron bacteria in wells is to clean them using chlorine. We have been granted resource consent to do this by GWRC's Environment Group and this work will be carried out during 2014/15.

To further understand the extent of the risk to the wellfield, GNS has been engaged to provide expert advice on aquifer water chemistry, and to determine how widespread both the bacteria and the precursors for the presence of the organism are.

3 Turbidity is a measure of suspended particles in water that causes loss of clarity. Turbidity can mask the presence of microbiological contamination

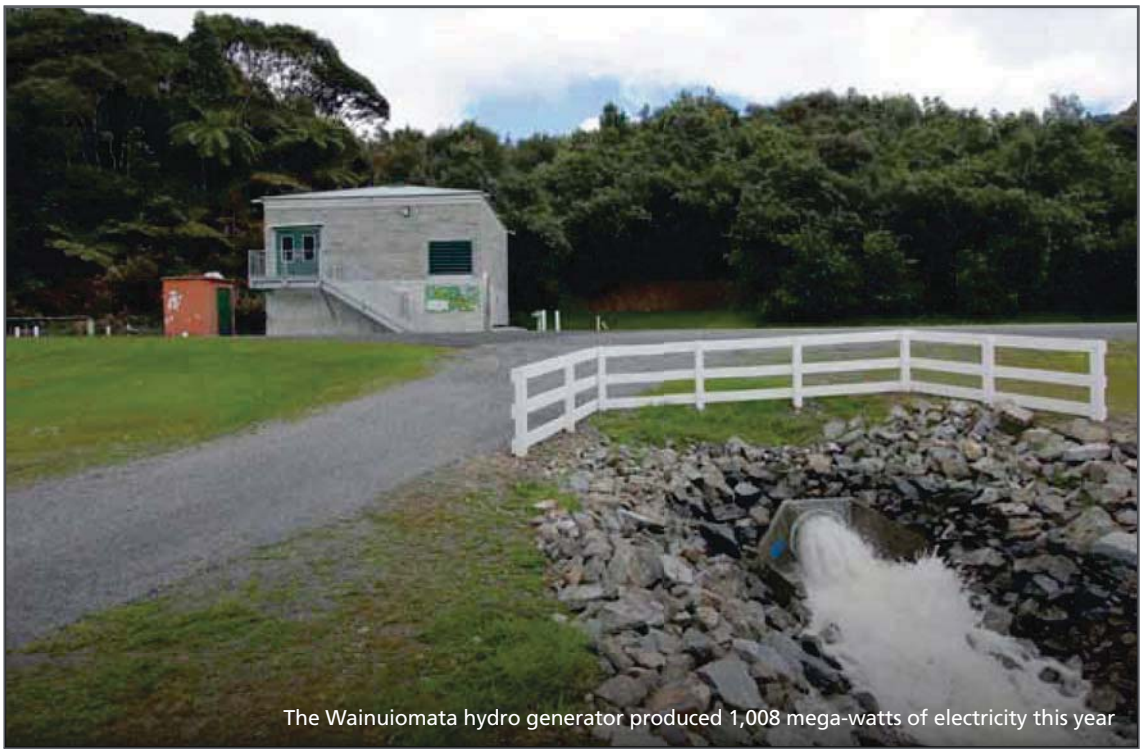
GEOSMIN IN THE STUART MACASKILL LAKES

A naturally occurring organic compound called geosmin can form in the water of the Stuart Macaskill lakes. While water with geosmin in it is safe to drink, it does make the water taste and smell "earthy". In most years, the level of geosmin in the lake water is not a concern and is easily removed during the treatment process.

However, last summer the levels of geosmin in the southern lake rose to exceptionally high levels, which weren't able to be treated completely. Before these very high levels were identified, water from the southern lake was used for supply[4] between 16 – 21 April. This resulted in taste complaints from consumers in three cities. Following this incident, only water from the northern lake was used when needed, as the geosmin levels in this lake were much lower and could be treated.

As a result of the persistently high levels of geosmin in the southern lake, the decision was taken to drain it at the end of summer and refill it with fresh river water. The lake was empty by the end of June and we are currently exploring several options that may help prevent this issue from reoccurring. The lake is scheduled to be refilled before this coming summer.

4 Water from the lakes are used either when the river water is too dirty to treat (usually after a storm) or when the river levels are too low to take all the water that we need. In this instance the river water was too dirty to use after a period of sustained rainfall



The Wainuiomata hydro generator produced 1,008 mega-watts of electricity this year

SUSTAINABILITY

Objectives: Ensure there is sufficient drinking water available to sustain and grow our population and economy; Encourage people to use water wisely, to reduce environmental impacts; Protect current and future water catchments

Community outcome contribution: healthy environment, strong economy

WATER SUPPLY VOLUMES

We supplied 49,279 million litres (ML) of water, 0.8% less than during 2012/13 (49,685 ML). The average daily supply was 135 ML/day.

Total water supply has reduced in each year since 2005/06, with a range of factors thought to have contributed, including reduced leakage from city pipe networks, gradual improvement in water-use efficiency of toilets, showers, taps and appliances and water conservation habits.

WATER SUPPLY BY CITY

Total supply to each city (and share of supply) was:

- Wellington: 26,333 ML (53.4%)
- Lower Hutt: 12,333 ML (25.0%)
- Porirua: 5,806 ML (11.8%)
- Upper Hutt: 4,806 ML (9.8%)

Two of the four cities reduced their water demand year-on-year: Lower Hutt by 2.9% and Wellington by 1.0%. Upper Hutt increased their water use by 2.5% and Porirua increased theirs by 2.1%.

PEAK WATER SUPPLY

The highest weekly supply total for the year was 1,089 ML (averaging 156 ML/day), 2.1% less than the maximum week during 2012/13 (1,112 ML). This is the second-lowest maximum week supply in records to hand going back 19 years (the lowest maximum week supply occurred in 2012 where 1,061 ML was recorded).

The highest daily supply total for the year was 167 ML (174 ML in 2012/13), again the second-lowest in records to hand (the lowest occurred in 2012 with 162 ML).

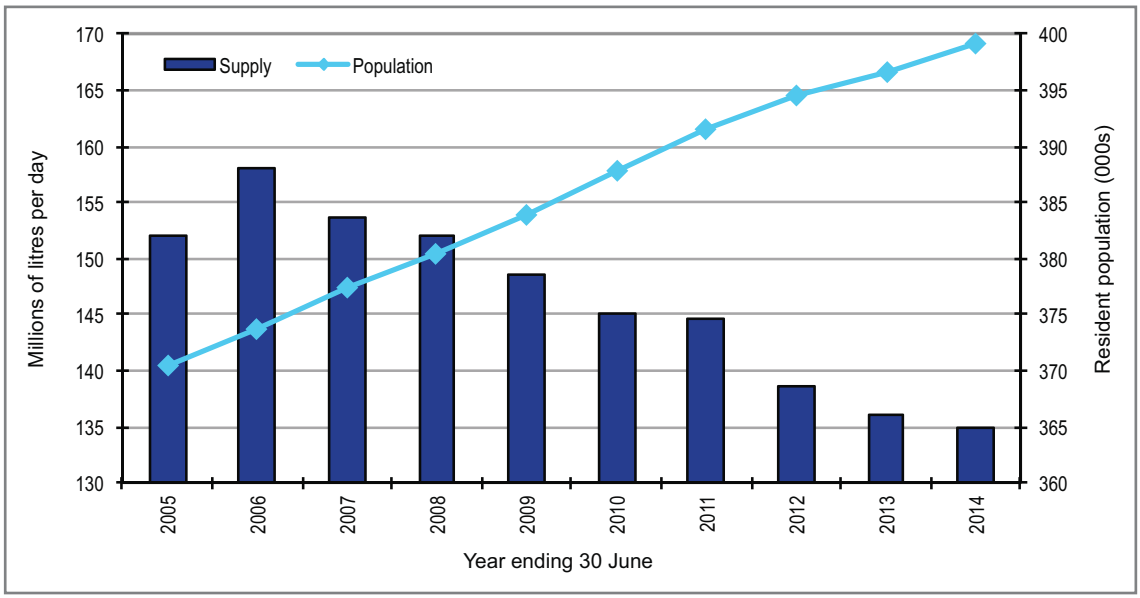
Weather variability is a significant factor changing levels of summer and peak water usage from one year to the next.

RESERVOIR SUPPLY RELIABILITY

We have two time-related monthly targets for maintaining water storage – above 60% full and 70% full – for every city reservoir that we supply to directly:

- We achieved the "70% full for at least 90% of the time" target for 100% of all reservoir-months
- We achieved the "60% full for at least 98% of the time" target for 99% of all reservoir-months; we aim to achieve 100%

AVERAGE DAILY WATER SUPPLY AND POPULATION – 10-YEAR TREND



The volume of water supplied has decreased by 11% since 2005 and by 15% since its 10-year high, in 2006. This year saw the lowest supply total in over 25 years. The trend of reducing use is in contrast the growing population supplied

No loss of supply to water users resulted from the few events that led to the <100% results[5].

WATER DELIVERY EFFICIENCY

There was a 1.3% difference between the metered volume of water leaving our treatment plants and that entering customer reservoirs; this result is within the margin of error for our revenue meters (+/-2%).

TOTAL PER CAPITA WATER SUPPLY

Total (gross) supply of water per resident[6] averaged 338 litres per person per day (L/p/day), 5 L/p/day lower than in 2012/13 (1.4%).

ESTIMATED DOMESTIC WATER USE

Most local households do not have a water meter to measure their individual water use, so our city council customers do not have precise figures for domestic water use. City council estimates of average domestic water use[7] this year are:

- Wellington: 220 L/p/day
- Lower Hutt: 220 L/p/day
- Porirua: 212 L/p/day[8]
- Upper Hutt: 212 L/p/day

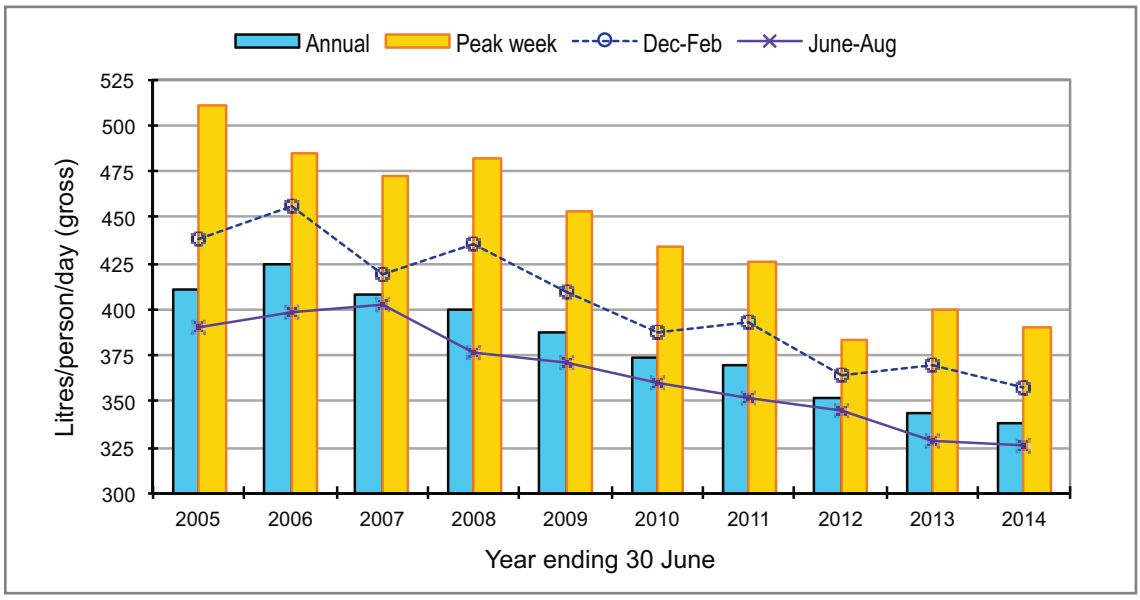
5 See Distribution shut-offs, p25 for more detail

6 Total water supply by Greater Wellington Regional Council to city councils for all types of consumption (including domestic, commercial/industrial and services), divided by the estimated resident population

7 Estimates provided by Capacity. Figures estimated as accurate to +/ – 20 L/p/day. Domestic water use is a subset of total (gross) water supply (see p15)

8 Since 2013, the calculation method for Porirua has been updated to match that used by Capacity for Lower Hutt, Upper Hutt and Wellington

AVERAGE DAILY WATER SUPPLY PER RESIDENT – 10-YEAR TREND



Annual water supply has decreased 18% since 2005 on a "per resident" basis. Both annual and "winter" supply per resident have seen year-on-year reductions for the last seven years. Summer and "peak week" water supply are more weather-dependent and variable, but also show a trend towards lower use

PUBLIC ENGAGEMENT WITH WATER CONSERVATION

For the two previous summers (2012 and 2013), our summer water conservation campaigns had been focussed on getting through the summer with around half of our stored water capacity. With the successful completion of the Stuart Macaskill Lakes upgrade project, our existing summer water conservation material needed refreshing.

Research insights and analysis of water supply trends were used to inform a range of advertisements that showed how to avoid wasteful water use in an "upbeat" and light-handed way via a range of easy water-saving tips. We showed how much water could be saved by making small changes as well as showing other personal benefits that would occur (ranging from savings in time, effort and dollars).

Following our summer water conservation campaign, we commissioned research to identify levels of public recognition for the campaign, the risk of water shortage and what response people had to our messages.

Just over 40 percent of people (43%) remembered seeing or hearing our summer water conservation campaign, with nearly half (48%) of the respondents saying that they are now making an effort to save water (up from 33% from our previous research carried out in 2012).

People typically rated the campaign as easy to understand, believable, relevant, and told them new information (99%, 98%, 81% and 62% respectively).

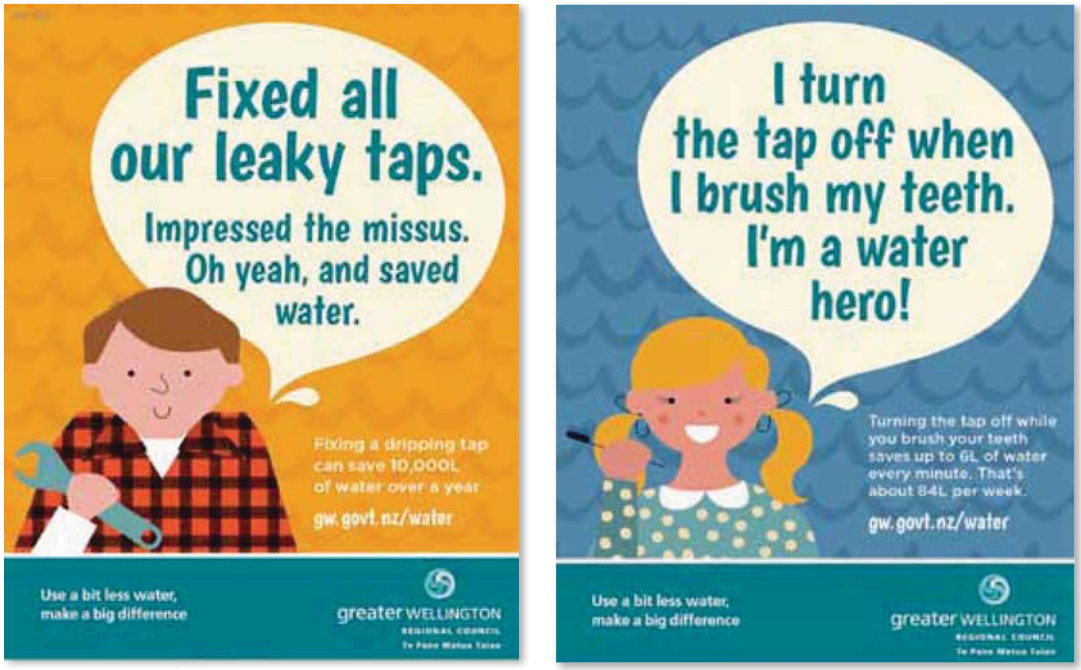
ENVIRONMENTAL IMPACTS

The main impacts of our operations on natural and physical resources relate to: the taking of water; energy and chemical use; discharges; and disposal of waste.

About 60% of our annual electricity use usually occurs at three sites: the Waterloo Water Treatment Plant (about 40% of total kilowatt-hours), the Waterloo wells (about 10%) and the Te Marua Pumping Station (about 10%).

The amount of power we use is affected by how much water we pump from the aquifer at Waterloo, and how much of the raw water treated at the Te Marua Water Treatment Plant is pumped from the Stuart Macaskill Lakes instead of coming direct from the Hutt River.

Our use of chemicals relative to the volume of water we treat is influenced by how much of our total production comes from river sources (which requires more chemical treatment than our aquifer source) and natural variation in raw water quality. Treating river water also generates solid and liquid waste, which we must dispose of.



Two examples from our summer water conservation tips promotion, which aimed to show the personal and community value in using a bit less water

We measure carbon emissions from energy use, but we have been unable to identify standardised emission factors for the production and transportation of treatment chemicals. Our three main water treatment plants use different proportions of power and chemicals, which mean the relative environmental impacts are unknown. Given this uncertainty, our approach is to produce water at minimum marginal cost, subject to meeting our obligations under the Resource Management Act and organisational targets, and maintaining an agreed standard for our security of supply.

CARBON EMISSIONS TARGET PROGRESS

Our carbon emissions from power use for the year to June were 45% less than in 2006, our base year for target setting. The result comfortably exceeds our medium-term target for carbon emissions reduction from energy use: 25% by December 2020.

TAKING OF WATER

We took 73,676 million litres of water in total from our river and aquifer sources, 4.3% more than during 2012/13. All water take was within consented limits.

49,279 ML of our take (67%) was supplied to city reservoirs, with most of the remaining water used to generate electricity at our Wainuiomata and Te Marua water treatment plants (after which the water was returned to the Hutt and Wainuiomata rivers).

ELECTRICITY USE

(Annual performance target 12.1.2)

We used 16,409 megawatt-hours (MWh) of electricity – 7% less than in 2012/13; this equated to 337 kilowatt-hours per million litres of production (354 in 2012/13).

SELF-GENERATION ELECTRICITY USE

We self-generated 817 MWh of electricity at Te Marua and 1,008 MWh at Wainuiomata – 5.0% and 6.1% respectively of our total power use.

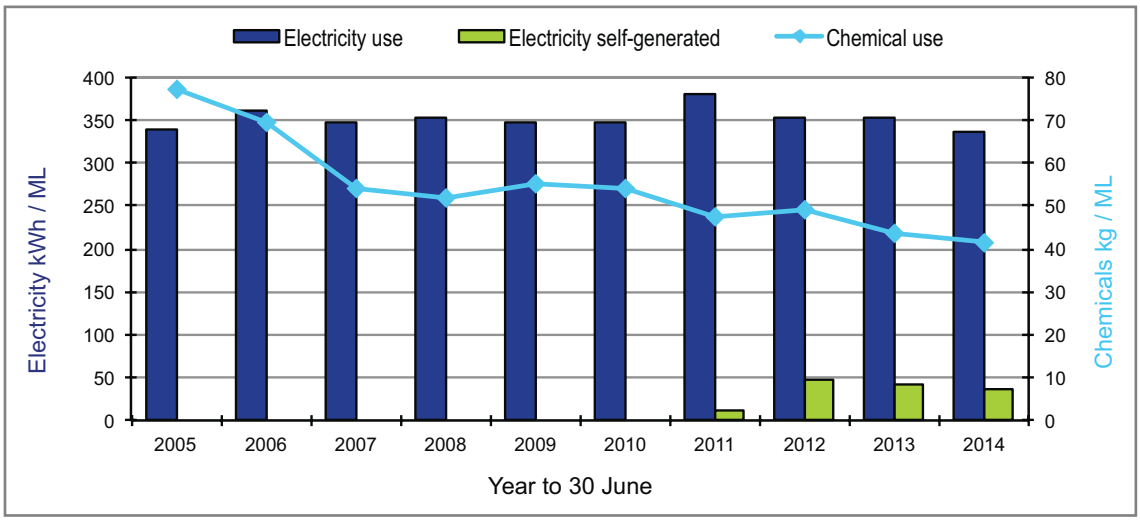
The electricity generated by our two hydro plants had a market value of $155,000.

HYDRO GENERATION AT PORIRUA

We've recently completed our third mini-hydro project with the commissioning of the Porirua mini-hydro plant this year.

Our newest electricity generator is connected to one of the reservoirs that serves central Porirua and uses a PAT (Pump As Turbine) system to recover the energy used during the filling of the reservoir. The site was selected because of its consistent flow and high water pressure characteristics. It will also be used to help confirm the economics of similar installations at other reservoirs with the potential for hydro-generation.

POWER AND CHEMICAL USE TREND



Changing levels of chemical and power use by volume of water supplied are influenced by our choice of production between acquifer and river sources. Our chemical use also reflects a concerted drive to optimise chemical treatment pocesses. We seek to minimise our marginal cost of production, subject to meeting various obligations and targets, including for water supply quality and reliability

It's annual power generation is estimated to be around 135 MWh, which has a current market value of approximately $13,000 per annum. This level of generation will off-set our energy purchase and related carbon emissions by 1%. The power will be exported to the local electricity grid.

CHEMICAL USE

(Annual performance target 12.1.3)

We used 2,052 tonnes of treatment chemicals – 4% less than during 2012/13.

Across all water treatment plants, we used 42kg of chemicals for every million litres of water treated – 1kg/ML less than in 2012/13. The decrease in the amount of treatment chemicals being used is due to a smaller proportion of river water relative to aquifer water being treated last year – river water requires more chemicals to treat than aquifer water.

TREATMENT WASTE

We sent 1,524 tonnes of de-watered treatment waste (sludge) to landfill from our river-water treatment plants – 5.8% less than during 2012/13.

On a weight-by-flow basis, this is 52kg of sludge per million litres of river water treated, a decrease of 12% over 2012/13. The ratio of sludge to treated water is determined by the quality of "raw" river water to be treated: dirtier water results in more sludge.

COMPLIANCE WITH RESOURCE CONSENTS

(Annual performance target 3.2.1)

We complied fully with all resource consents held during the year.

We carried out another round of ecological monitoring of the Hutt River this summer, as required by our Kaitoke Weir consent. The increase in nutrients[9] around Silverstream was present again, but due mainly to the frequent flushing flows in the river, algae growth this summer was very low.

9 Elevated nutrient levels in rivers are one of the main factors contributing to algal blooms. Historically, algal blooms have occurred in the Hutt River between Trentham and Silverstream

The Khandallah Emergency Pumping Station was commissioned this year

FINANCIAL HIGHLIGHTS

Financially the 2013/14 year has been largely a "business as usual" year with no unusual events having a significant financial impact. However, the upcoming integration between our Water Supply Group and Capacity has seen us spend an unbudgeted $183,000 on change-project costs.

OPERATING REVENUE

Total operating revenue was better than budget by $0.6m:

- External revenue: $0.3m better than budget. We undertook unbudgeted work for external parties during the year. This work is on a cost recovery basis so did not result in any cash surplus. We sold $32,000 of steel pipe to Wellington City Council (at replacement cost). Also included in the result was a $127,000 incentive payment from the owners of the building that we leased for office accommodation from October 2013
- Investment revenue: $0.2m better than budget. The return on our Asset Rehabilitation Fund was above budget. These funds are invested by GWRC's Treasury Department in the short-term money market, which continues to produce above forecast returns
- Gifted Assets: We also received gifted assets from Wellington City Council to the value of $0.1m

OPERATING COSTS

Total direct operating costs were higher than budget by $0.3m:

- Staff costs: $0.7m higher than budget. Actual payments to staff were on budget, the variance is because staff spent considerably less time than was budgeted working on capital projects. As a consequence their time was charged to operating expenses
- Materials Supplies and Service $0.5m better then budget. Mainly due to chemicals and electricity being $408,000 under budget. Anticipated price increases did not occur. Chemical and power usages are hard to predict in advance due to the mix of factors that drive their use
- Other costs: $0.1m higher than budget. Contractors and consultants over budget by $0.2m due to external experts used to review and enhance ISO and Health and Safety systems. Offset by savings in transport and internal charges – $0.1m

FINANCE COSTS

Debt financing costs: $0.3m less than budget. Mainly due to the delay in settling the Kaitoke land purchase – $4.3m and other delayed spending against the capital budget.

CAPITAL EXPENDITURE

We ended the year with a slight over-spend of $0.1m against our capital budget, representing approximately 1% of the works programme. Some projects were deferred as a result of the improvements to our project management procedure, with more emphasis placed on the appropriate level of planning being undertaken before projects start. Conversely we brought forward other projects such as our water treatment plant seismic strengthening programme to complete as budget and scheduling permitted.

The most significant milestone with the capital expenditure projects was the settlement of the Pakuratahi land deal at Kaitoke, which has been ongoing for some years. The purchase was finalised at a cost of some $0.3m more than originally budgeted.

CASH FLOW

Cash flow from operating activities was $1.1m better than budget. This was the result of the better than budget income and below budget cash expenses. This surplus was used to retire debt ahead of schedule. This will have the benefit of interest cost savings and help create debt-carrying capacity with an eye towards substantial future investment in new operational storage.

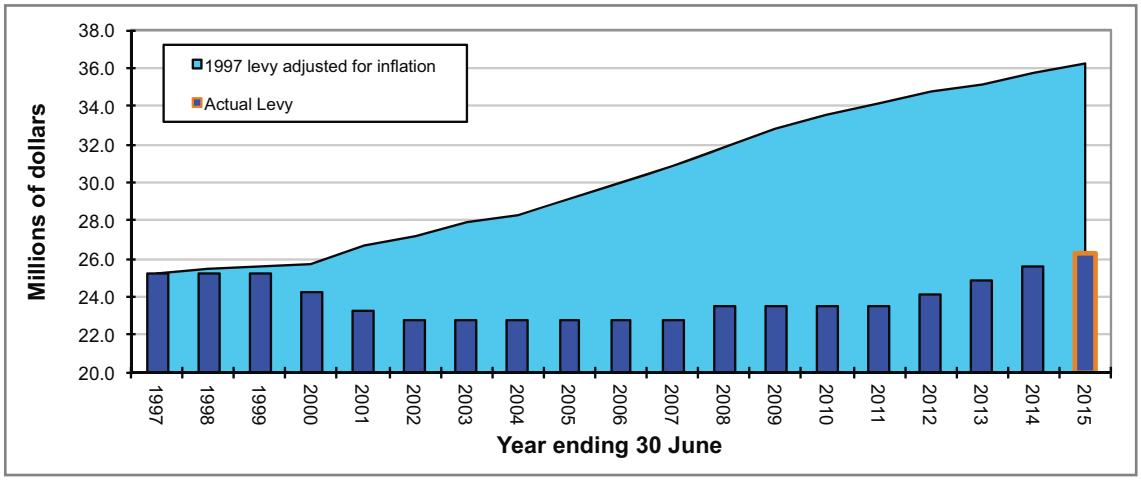
FINANCIAL POSITION

The Water Supply Group balance sheet has shown a moderate strengthening. Total net asset values now stand at $467.9m (2011/12 $463.9m) with total liabilities of $62.8m. Debt has increased by $6.5m to $60.6m.

BULK WATER LEVY 2013/14

The levy for 2013/14 was increased by three per cent (to $25.6m) over the 2012/13 level in anticipation of increased operational costs due to inflation and to enable accelerated retirement of debt. In June, the Regional Council approved a 2.5% increase in the levy for 2014/15.

BULK WATER LEVY AND CPI INFLATION



The water levy that we charge the Hutt, Porirua, Upper Hutt and Wellington city councils will increase by 2.5% for 2014/15.The levy was held or cut for 12 of the 13 years between July 1998 and July 2010, however, we are now in a phase of preparing for a period of significant investment that will require a sustained period of levy increases to meet our debt repayment obligations

INSURANCE REVIEW

(Improvement project 1.13)

Last year we reported that further work was needed to fully understand the Water Supply Group's financial exposure in the event of a rupture of the Wellington Fault.

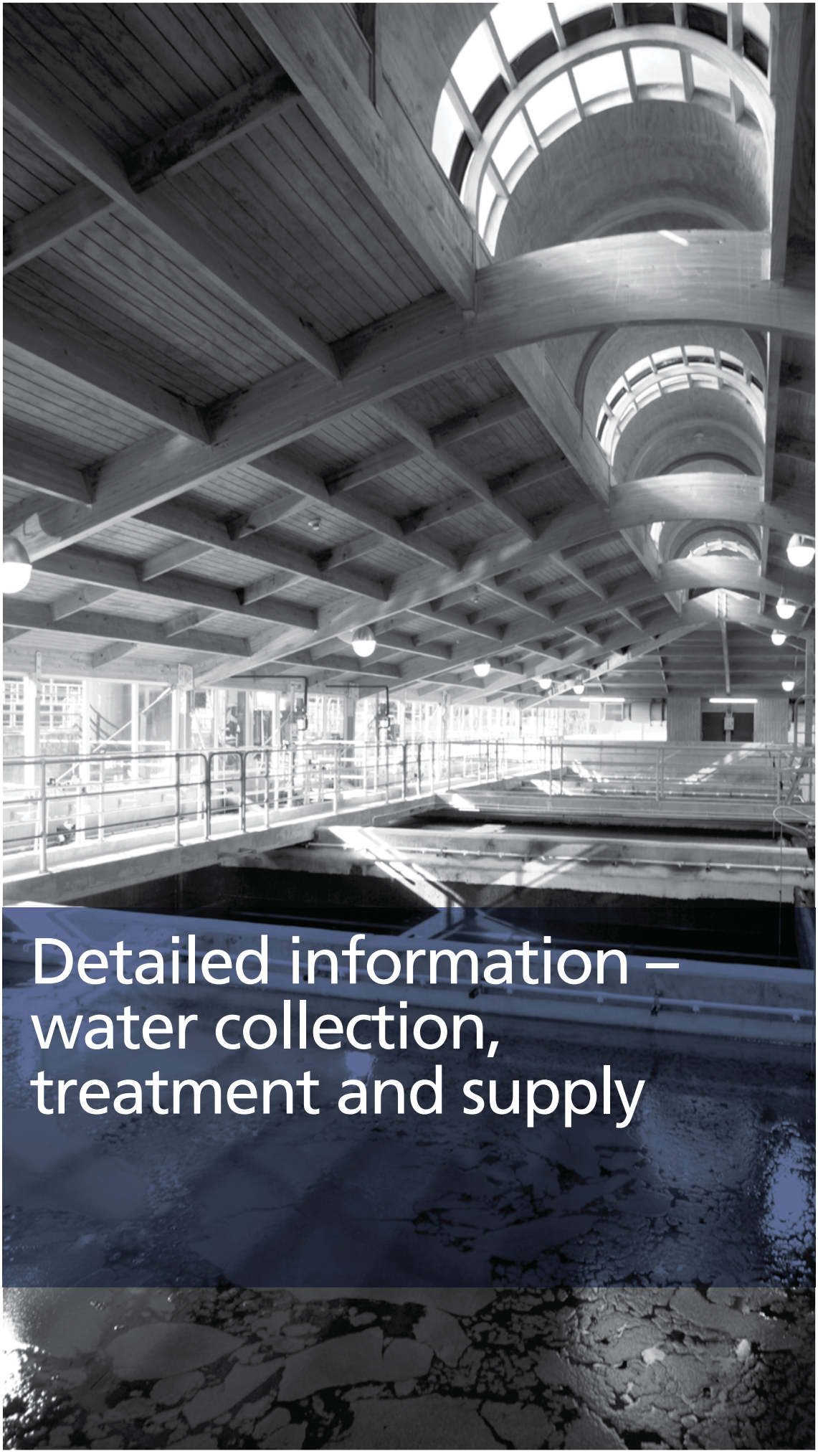
To understand our exposure, a detailed review of the maximum probable loss (MPL) for our pipelines, tunnels and the Stuart Macaskill Lakes was carried out. The review used the new technical and cost information that has come out of the 2010 and 2011 Christchurch earthquakes. The 2013 re-valuation of Water Supply assets was also used.

The review concluded that the Water Supply Group's maximum probable loss is $68m, up from the previous assessment of $44.5m.

Our assets are covered through a combination of council-wide Material Damage Insurance, cash reserves in a Water Supply Asset Rehabilitation Fund (currently valued at $20.4 million and targeted at funding the MPL), and an expectation of some level of government financial support in an event of an earthquake. Contributions to the fund will continue to increase the cash reserves, this will, over time, decrease the probable level of government financial support required.

FINANCIAL SUMMARY

	2014 Actual $000	2013 Actual $000	2012 Actual $000	2011 Actual $000	2010 Actual $000
Operating revenue	27,154	26,513	27,402	27,051	27,106
Depreciation	11,453	8,257	8,334	8,215	7,950
Financial costs	3,341	3,585	3,204	2,538	2,924
All other operating expenditure	14,978	21,866	19,392	17,217	16,732
Operating surplus/(deficit)	**(2,618)**	**(7,195)**	**(3,528)**	**(919)**	**(500)**



Detailed information – water collection, treatment and supply

Sources of water supplied

WATER ABSTRACTION (MILLIONS OF LITRES)

For the year ended 30 June

Source	Annual					Maximum week			Maximum day		
	Total		Percent	Average day		Date	Average day		Date	Day	
	2014	2013	2014	2014	2013	2014	2014	2013	2014	2014	2013
River and stream abstraction											
Kaitoke/Te Marua	42,032	37,516	57.0%	115.2	102.8	15/01/14	142.0	142.0	23/07/13	142.1	142.0
Wainuiomata	4,834	3,931	6.6%	13.2	10.8	13/11/13	25.9	29.7	17/10/13	28.5	34.8
Orongorongo	5,082	5,475	6.9%	13.9	15.0	31/07/13	32.4	27.0	15/02/14	37.8	33.0
George Creek	1,536	1,062	2.1%	4.2	2.9	20/11/13	9.2	7.2	16/11/13	10.4	9.8
Big Huia Creek	720	1,360	1.0%	2.0	3.7	07/05/14	8.1	11.4	02/05/14	11.7	13.1
Total – rivers	54,203	49,343	74.0%	148.5	135.2	25/06/14	194.5	197.0	15/02/14	201.5	199.0
Public artesian abstraction											
Waterloo	19,371	21,109	26.3%	53.1	57.8	04/12/13	75.6	85.9	01/12/13	84.7	99.7
Gear Island	102	174	0.1%	0.3	0.5	21/05/14	3.2	7.7	14/05/14	14.6	24.4
Total – artesian	19,473	21,283	26.0%	53.4	58.3	04/12/13	76.2	85.9	01/12/13	84.7	99.7
Total public abstraction	**73,676**	**70,626**	**100%**	**201.9**	**193.5**	**24/7/13**	**249.5**	**253.8**	**16/02/14**	**264**	**275.9**

See also "Taking of water", p17. Totals may not add exactly due to rounding

RAINFALL LEVELS (MILLIMETRES)

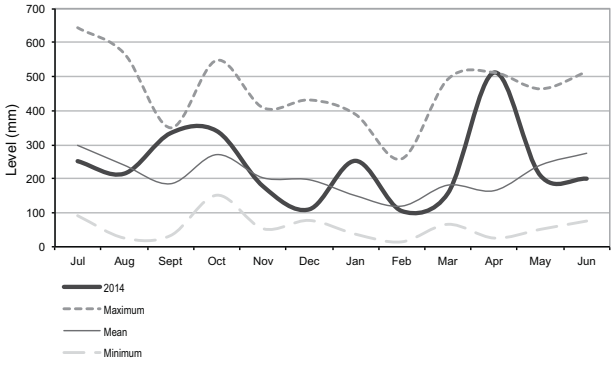
For the year ended 30 June

	Kaitoke[1]	Karori[2]	Orongorongo[3]	Wainuiomata[4]
2014	2,449	1,338	2,863	1,868
2013	1,968	1,290	2,449	1,707
Mean of data record	2,301	1,244	2,475	1,934
2014:mean	106%	108%	116%	97%

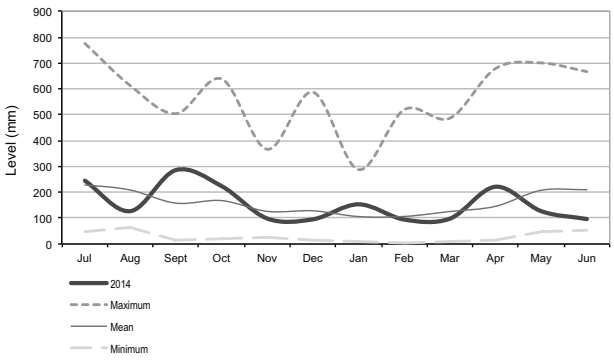
1: Kaitoke Headworks rain gauge. 2: Karori Sanctuary rain gauge. 3: Orongorongo Swamp rain gauge. 4: Wainuiomata Reservoir rain gauge

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

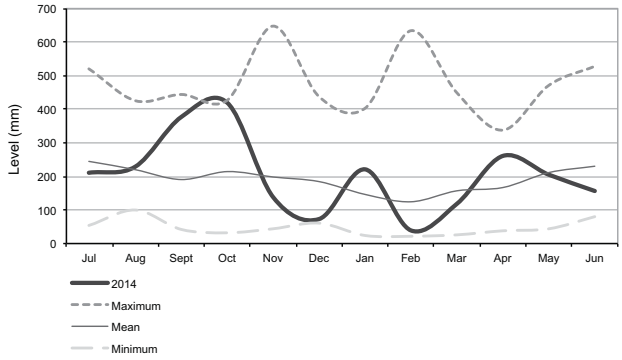
ORONGORONGO CATCHMENT RAINFALL
(Orongorongo Swamp record 1980-2014)



WAINUIOMATA CATCHMENT RAINFALL
(Wainuiomata Reservoir record 1890-2014)



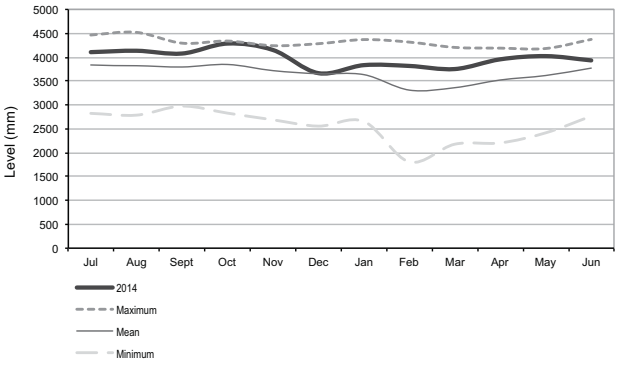
HUTT CATCHMENT RAINFALL
(Kaitoke Headworks record 1951-2014)



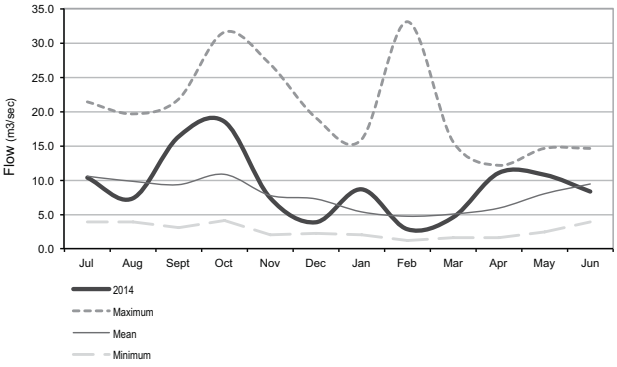
LEVELS AND FLOWS FROM WATER SOURCES

The following three graphs show historical highs, lows and averages for river flows from the Hutt and Wainuiomata rivers and for the level of the Waiwhetu aquifer at Petone – the three main water sources that we use to supply Lower Hutt, Porirua, Upper Hutt and Wellington – compared with data for the 12 months to 30 June 2014.

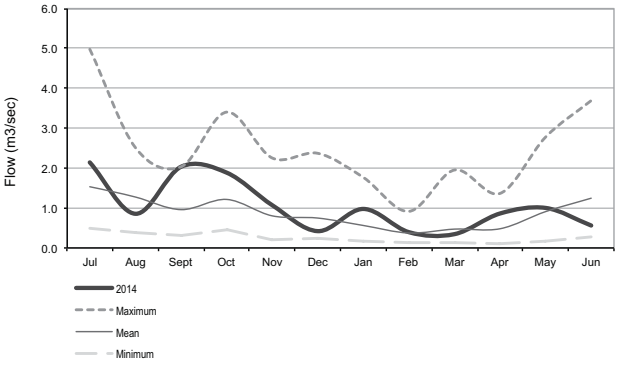
WAIWHETU AQUIFER
(McEwan Park record 1971-2014)
Average monthly level for the year ended 30 June



HUTT RIVER
(Kaitoke record 1968-2014)
Average monthly flow for the year ended 30 June



WAINUIOMATA RIVER
(Manuka Track record 1982-2014)
Average monthly flow for the year ended 30 June



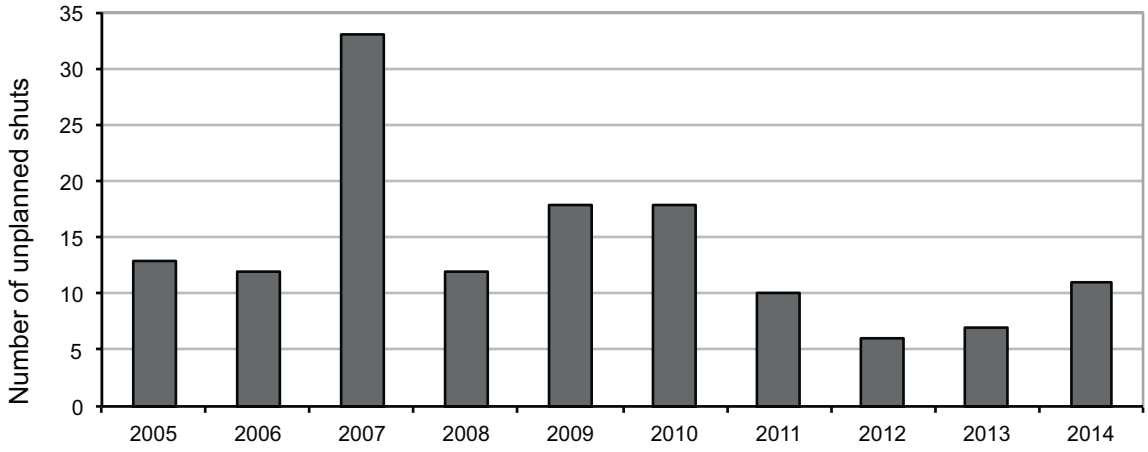
Distribution shut-offs

We shut off part of our bulk water supply network on a total of 33 occasions this year to carry out repairs, maintenance and improvements (2013 = 42). In all cases, we finished the work and reinstated the supply without loss of water or pressure to consumers within the affected supply zones.

Of the 33 shut-offs, we needed more than eight hours to reinstate 11 of them. We were able to supply water from either an alternative reservoir or we managed the affected reservoir to avoid disruption in all of these cases.

Eleven shutdowns were unscheduled, for repair of leaking or burst mains or to replace leaking valves, compared to seven during the year to 30 June 2013 (see graph below). The remaining 22 shutdowns were scheduled (2013 = 35). This work was required to install new or refurbished pipes and valves, install new flow meters and mitigate the risk of asset failures from seismic activity.

UNPLANNED SHUT-OFFS OF BULK WATER MAINS



Water supply volumes

Since December 2005, we have had remote access to revenue meters at the supply points to our customers, and have collected readings daily. Prior to December 2005, we recorded water supply figures weekly by manual reading of revenue meters at the supply points to our customers. The annual supply totals prior to the year ended 30 June 2006 (presented below) have been calculated to represent 365/366 day years, so as to make the historic data more directly comparable between years and consistent with abstraction and production figures, which are recorded daily. The years ended 30 June 2008 and 2012 are 366 days.

WATER SUPPLIED (MILLIONS OF LITRES)

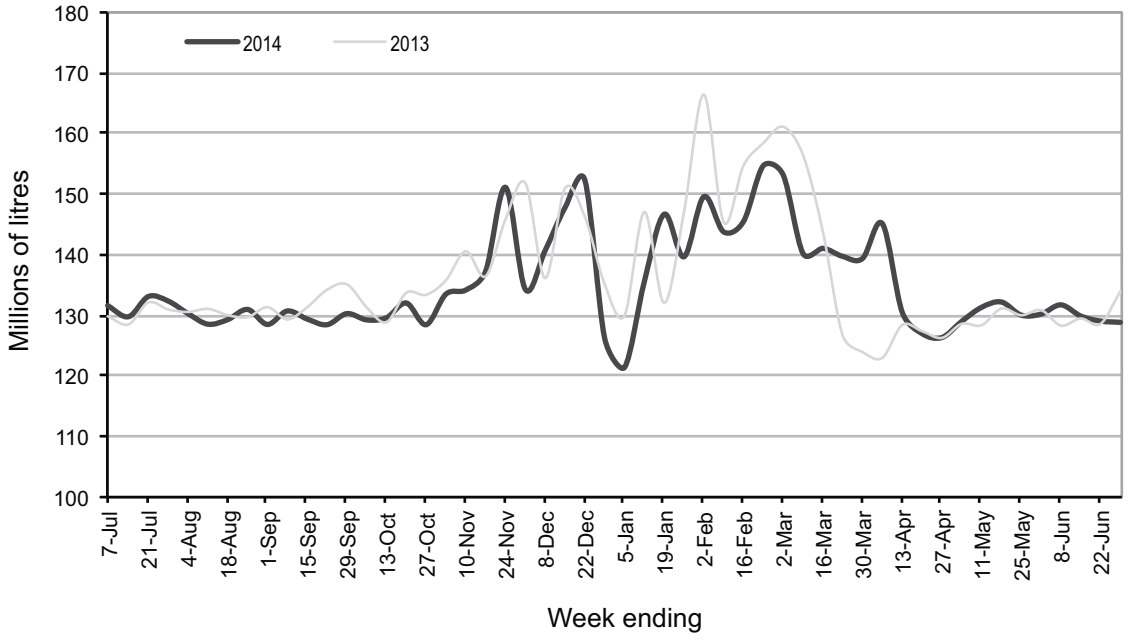
For the year ended 30 June

	Lower Hutt		Porirua		Upper Hutt		Wellington		Total supply	
	Total	Avg. day	Total	Avg. day	Total	Avg. day	Total	Avg. day	Total	Avg. day
2014	12,333	33.8	5,806	15.9	4,806	13.2	26,333	72.1	49,279	135.0
2013	12,707	34.8	5,688	15.6	4,688	12.8	26,601	72.9	49,685	136.1
% change	*-2.9%*		*2.1%*		*2.5%*		*-1.0%*		*-0.8%*	
2012	12,900	35.3	5,834	15.9	4,784	13.1	27,204	74.3	50,722	138.6
2011	13,470	36.9	5,877	16.1	4,990	13.7	28,441	77.9	52,777	144.6
2010	13,369	36.6	6,179	16.9	4,880	13.4	28,510	78.1	52,939	145.0
2009	13,804	37.8	6,277	17.2	5,011	13.7	29,136	79.8	54,228	148.6
2008	14,133	38.6	6,439	17.6	5,159	14.1	29,912	81.7	55,642	152.0
2007	14,076	38.6	6,317	17.3	5,113	14.0	30,542	83.7	56,048	153.6
2006	14,236	39.0	6,475	17.7	5,533	15.2	31,667	86.8	57,913	158.7
2005	13,938	38.2	6,022	16.5	5,319	14.6	30,244	82.9	55,522	152.1

AVERAGE DAILY WATER SUPPLY BY WEEK

For the year ended 30 June

Weeks shown are seven days from 1 July



AVERAGE DAILY SUPPLY GROSS WATER SUPPLY PER CAPITA (LITRES)

For the year ended 30 June 2014

	Lower Hutt	Porirua	Upper Hutt	Wellington	Total
Population[1]	102,400	53,200	39,450	204,000	399,050
Gross litres/head/day	330	299	334	354	338

1: Usually resident population, urban areas – extrapolated from Statistics NZ estimates. The populations presented are estimates for 30 June 2013, plus half the difference between the 30 June 2012 and 2013 estimates, to approximate a 2013/14 average population

MAXIMUM WEEK SUPPLY (MILLIONS OF LITRES)

For the year ended 30 June

Maximum week 2014	**Lower Hutt**	**Porirua**	**Upper Hutt**	**Wellington**	**Total**
	25/12/13	**26/02/14**	**26/02/14**	**26/02/14**	**26/02/14**
Total of maximum week					
2014	273.4	133.3	113.8	568.8	1,089.0
2013	287.3	130.3	109.7	593.0	1,112.4
% change	*-4.8%*	*2.3%*	*3.7%*	*-4.1%*	*-2.1%*
Average day of the maximum week					
2014	39.1	19.0	16.3	81.3	155.6
2013	41.0	18.6	15.7	84.7	158.9

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

For the year ended 30 June

	Lower Hutt		Porirua		Upper Hutt		Wellington		Total supply	
	Total	Avg. day	Total	Avg. day	Total	Avg. day	Total	Avg. day	Total	Avg. day
2014	3,016	32.8	1,370	14.9	1,121	12.2	6,469	70.3	11,975	130.2
2013	3,044	33.1	1,373	14.9	1,127	12.3	6,458	70.2	12,001	130.4
% change	*-0.9%*		*-0.2%*		*-0.5%*		*0.2%*		*-0.2%*	
2012	3,185	34.6	1,397	15.2	1,161	12.6	6,772	73.6	12,515	136.0
2011	3,240	35.2	1,411	15.3	1,150	12.5	6,903	75.0	12,704	138.1
2010	3,275	35.6	1,472	16.0	1,174	12.8	6,940	75.4	12,860	139.8
2009	3,352	36.4	1,505	16.4	1,201	13.1	7,062	76.8	13,119	142.6
2008	3,321	36.1	1,491	16.2	1,192	13.0	7,165	77.9	13,168	143.1
2007	3,387	36.8	1,515	16.5	1,240	13.5	7,813	84.9	13,955	151.7
2006	3,377	36.7	1,503	16.3	1,276	13.9	7,560	82.2	13,716	149.1
2005	3,356	36.5	1,443	15.7	1,245	13.5	7,271	79.0	13,314	144.7

N.B. Figures are July and August from one calendar year and June from the next. E.g., 2013 represents July and August 2012 and June 2013

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

Water quality measurement

An International Accreditation New Zealand (IANZ) registered laboratory carries out all our E.coli and chemical analysis.

CHEMICAL MONITORING – WHOLESALE WATER SUPPLY

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

The problems associated with chemical constituents arise primarily from their ability to cause adverse effects after prolonged periods of exposure.

Standards for chemical compliance are set out in the Ministry of Health's *Drinking-water Standards for New Zealand (DWSNZ) 2005 (Revised 2008)*.

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

MEDIAN AND MAXIMUM VALUES OF CHEMICAL ANALYSIS AT TREATMENT PLANTS

For the year ended 30 June 2014

DWSNZ 2005 (Revised 2008)			Te Marua			Wainuiomata			Waterloo			Gear Island		
Parameter	MAV[A]	GV[B]	No. of samples	Median value	Max value	No. of samples	Median value	Max value	No. of samples	Median value	Max value	No. of samples	Median value	Max value
Alkalinity – Total g CaCO3/m³	-	-	13	78	78	13	30	42	13	58	65	1	26	31
Aluminium – Total g/m³	-	0.1	14	0.0185	0.025	14	0.027	0.417	6	0.037	0.044	3	0.005	0.006
Arsenic – Total g/m³	0.01	-	2	<0.002	<0.002	2	<0.002	<0.002	2	<0.002	<0.002	3	<0.002	<0.002
Boron – Total g/m³	1.4	-	2	<0.05	<0.05	2	<0.05	<0.05	2	<0.05	<0.05			
Cadmium – Total g/m³	0.004	-	2	<0.001	<0.001	2	<0.001	<0.001	2	<0.001	<0.001	3	<0.001	<0.001
Calcium Hardness g CaCO3/m³	-	200	13	18	23	13	30	45	13	48	53	–	–	–
Chloride g/m³	-	250	1	10	10	1	23.5	23.5	2	14.85	15.6	3	16.6	17.1
Chromium – Total g/m³	0.05	-	2	<0.001	<0.001	2	<0.001	<0.001	2	<0.001	<0.001	3	<0.001	<0.001
Conductivity at 25°C – mS/m	-	-	1	9.8	9.8	1	15.5	15.5	2	17.65	18.5	1	22.9	22.9
Copper – Total g/m³	2	-	13	<0.013	0.02	13	<0.013	<0.013	13	<0.013	0.03	14	<0.013	<0.013
Cyanide g/m³	0.6	-	2	<0.005	<0.005	2	<0.005	<0.005	2	<0.005	<0.005	3	<0.005	<0.005
Fluoride g/m³	1.5	-	104	0.79	0.93	103	0.75	0.94	96	0.65	0.94	157[C]	0.83	1
Hydrogen Sulphide g/m³	-	0.05	1	<0.05	<0.05	1	<0.05	<0.05	2	<0.05	<0.05	1	<0.05	<0.05
Iron – Total g/m³	-	0.2	13	0.013	0.025	14	0.0135	0.318	13	0.06	0.19	14	0.0865	0.2
Lead – Total g/m³	0.01	-	2	0.0015	0.002	2	0.0015	0.002	2	0.0015	0.002	3	0.001	0.005
Manganese – Total g/m³	0.4	-	13	<0.013	0.018	13	<0.013	0.025	13	<0.013	<0.013	14	<0.013	<0.013
Mercury – Total g/m³	0.007	-	2	<0.001	<0.001	2	<0.001	<0.001	2	<0.001	<0.001	3	<0.001	<0.001
Nickel – Total g/m³	0.08	-	2	<0.001	<0.001	2	<0.001	<0.001	2	<0.001	<0.001	3	<0.001	<0.001
Nitrate – Nitrogen g/m³	50	-	2	0.025	0.04	2	0.08	0.08	2	0.705	0.84	3	1.22	1.24
pH	-	7.0 – 8.5	14	7.8	8	14	7.7	8.1	15	7.8	8.2	52[C]	7.6	8.1
Selenium – Total g/m³	0.01	-	2	<0.005	<0.005	2	<0.005	<0.005	2	<0.005	<0.005	3	<0.005	<0.005
Silica g/m³	-	-	2	11.285	13.1	2	15.05	17	2	16.3	16.4	3	17.4	17.5
Sodium g/m³	-	200	1	10.8	10.8	1	14	14	2	11.9	12.2	3	30.9	32.3
Sulphate g/m³	-	250	1	2.61	2.61	1	4.32	4.32	2	5.69	5.7	3	6.8	7.17
Total Dissolved Solids g/m³	-	1000	1	48	48	1	76	76	2	87	91	1	112	112
Zinc – Total g/m³	-	1.5	13	<0.013	<0.013	13	<0.013	<0.013	13	<0.013	<0.013	14	<0.013	<0.013

(A) MAV denotes the maximum acceptable value to comply with the Drinking Water Standards. (B) GV denotes the guideline value for aesthetic determinands in the Drinking Water Standards. (C) Denotes that the results are from a sample point downstream of Gear Island Treatment Plant

MICROBIOLOGICAL MONITORING OF THE WHOLESALE WATER SUPPLY

A public water supply that is free from microbiological contamination is an important factor in achieving high standards of public health. Microbiological contamination of a water supply has the potential to cause sickness within the community. We carry out microbiological monitoring of potable water in order to determine the safety of the water in relation to the possibility of transmission of waterborne disease. *Escherichia (E.) coli*, which usually comes from faecal material, is an accepted indicator of bacteriological contamination. We maintain very low turbidity levels in our treated water to demonstrate low numbers of protozoa (*Cryptosporidium*). Direct testing of protozoa is not practical or required by the Ministry of Health.

PRODUCTION

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

The Waiwhetu aquifer is a secure water source and, therefore, free from microbiological contamination according to the drinking water standards. However, we test water leaving our aquifer-source water treatment plants (Waterloo and Gear Island) to demonstrate compliance to the E.coli criteria of the DWSNZ.

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

DISTRIBUTION

In the distribution system, *E.coli* sampling is carried out to monitor the microbiological quality of the water after treatment. Sampling is in accordance with the requirements of the drinking water standards.

The *Register of Community Drinking Water Supplies in New Zealand* includes our distribution system. The system has three distinct zones, with each having its own sampling requirements based on population served. We must take samples on different days of the week and from sites that represent the full range of conditions that exist within a distribution zone. The three zones are (1) Central Hutt/Petone (un-chlorinated supply from the Waterloo Water Treatment Plant), (2) Wainuiomata/South Wellington (typically supplied from the Wainuiomata and Waterloo water treatment plants) and (3) Upper Hutt/Porirua/ North Wellington (typically supplied from the Te Marua Water Treatment Plant). We take samples from 16 sampling sites within the three zones.

A summary of results for the twelve months to 30 June 2014 appears below.

E.COLI RESULTS – SUMMARY OF SAMPLES COLLECTED

For the year ended 30 June 2014

Distribution Zone	DWSNZ MAV(A)	No. of samples	No. of positive results
Central Hutt/Petone	<1 in 100ml sample	325	1
Upper Hutt/Porirua	<1 in 100ml sample	376	0
South Wellington/Wainuiomata	<1 in 100ml sample	325	0

(A) Drinking Water Standards for New Zealand 2005 (Revised 2008), MAV denotes "Maximum acceptable value" for microbial determinands

Following the single positive result from the Central Hutt/Petone zone, retesting was carried out as prescribed in the DWSNZ. No E.coli was detected.

Annual plan levels of service and performance measures

Greater Wellington Regional Council is responsible for collecting, treating and distributing water to the Wellington City Council, Hutt City Council, Upper Hutt City Council and Porirua City Council.

ACTIVITIES

Our water supply group of activities have three components:

- Water quality – ensuring safe, high-quality water
- Water availability – a secure reliable water supply
- Sustainability – planning for future demand and being cost effective while meeting all relevant environmental and health and safety standards

CONTRIBUTION TO COMMUNITY OUTCOMES

Water supply activities contribute towards achieving:

- a **strong economy** by ensuring there is sufficient drinking water available to sustain and grow our population and support our economy
- a **resilient community** by preparing the system to cope with emergencies and the long-term impacts of climate change
- a **healthy environment** by encouraging people to use water wisely to reduce the environmental impacts, and protecting current and future water catchments
- **quality of life** by ensuring that drinking water meets Ministry of Health requirements

ACTIVITY 1: WATER QUALITY

Level of service	Performance measure	Performance targets		
		2012/13 actual	2013/14 target	2013/14 actual
Provide water that is safe and pleasant to drink	Number of waterborne disease outbreaks	0	0	0
	Number of taste complaint events related to the bulk water supply	0	0	1 Incident relating to high Geosmin levels in the Stuart Macaskill Lakes in April. See "Geosmin in the Stuart Macaskill Lakes", p13
	Percentage compliance with the Drinking Water Standards of New Zealand[10]	Microbiological and aesthetic compliance – 100%	Microbiological and aesthetic compliance – 100%	100% One *E.coli* transgression was recorded by Regional Public Health, no further action required
		Chemical compliance – 100% (2010/11)	Chemical compliance – 100%	100% One fluoride transgression recorded by Regional Public Health, no further action required
	Treatment plant and distribution system grading	Te Marua, Wainuiomata and Gear Island treatment plants – "A1" Waterloo treatment plant – "B" Distribution system – "a1" (2010/11)	Maintain current grading	No change to grading

ACTIVITY 2: WATER AVAILABILITY

Level of service	Performance measure	Performance targets		
		2012/13 actual	2013/14 target	2013/14 actual
Provide a continuous and secure water supply	Number of shut-offs of the bulk water supply network resulting in loss of water or pressure to consumers	0	0	0
	Improve the resilience of the bulk water supply to catastrophic events such as earthquakes	A methodology for assessing improvements to the resilience of the bulk water supply was developed	Plan for and implement resilience improvements	Asset Management Plan and annual works programme in place

10. The LTP 2012/12 incorrectly identified the baseline. Targets have been updated accordingly

ACTIVITY 3: SUSTAINABILITY

Level of service	Performance measure	Performance targets		
		2012/13 actual	2013/14 target	2013/14 actual
Ensure that water supply infrastructure is adequate to meet future needs while minimising environmental impacts	Modelled probability of annual water supply shortfall	1.5%	No greater than 2%	The Annual Shortfall Probability (ASP) for the bulk water supply as at 30 June 2014 is 0.4%
	Compliance with environmental regulations	Full compliance	Full compliance	Full compliance

Greater Wellington Regional Council's Long-Term Plan 2012-22 (Water Supply, section 7.4 p76) identified specific areas of work for 2013/14. The results of this work are reported below:

Specific areas of work for 2013/14	Results
Renew and improve water supply infrastructure, including improvement of earthquake resilience	Assets have been replaced / improved as set out in the capital expenditure programme
Investigate feasibility of water storage lakes at Kaitoke for meeting future demand	A feasibility report completed in May 2014 confirmed that development of two raw water storage lakes on the AgResearch farm at Pakuratahi capable of storing up to 3,000 million litres (ML) of water is feasible, comparable in cost to the option previously investigated at Kaitoke, and has a lower risk profile than the Kaitoke storage
Investigate feasibility of water storage lakes for emergency supply	A feasibility report completed in February 2014 confirmed that construction of one or two emergency water storage lakes on Landcorp land near Takapu Road, with a volume between 200 ML and 680ML is feasible and cost effective. The land is currently under the control of the Office of Treaty Settlements and is listed in the Property Redress Schedule associated with the Ngati Toa treaty settlement

Management systems reporting

We have implemented a new Integrated Management Manual (IMM) framework to consolidate our quality and environmental management systems. The IMM has significantly improved our ability to demonstrate compliance with the requirements of ISO 9001 and 14001 standards.

We have split our quality and environmental management systems reporting between "business as usual" work (annual performance targets) and improvement work (improvement projects). For both the improvement projects table and the annual performance targets table we have shown links to the community outcomes listed in Greater Wellington Regional Council's Long-Term Plan 2012-22.

IMPROVEMENT PROJECTS

Level of service	Target	**Achievement** and 2013/14 commentary	10-Year plan 2012-22 community outcomes reference
WATER AVAILABILITY			
Providing a continuous and secure water supply	Project 1.1 – Complete the Stuart Macaskill Lakes increased capacity project	**Achieved** As reported last year, construction work had been completed by August 2013 and the refilling of the northern lake had commenced. The northern lake was back in service on 18 October 2013. Practical completion was certified in October 2013	Resilient community
	Project 1.2 – Complete the seismic strengthening work on northern Stuart Macaskill Lake and refill it by December 2013	**Achieved** See also Project 1.1 (above)	Resilient community
	Project 1.3 – Replace the variable speed drive (VSD) in the Waterloo Water Treatment Plant's Wellington Pump No. 1	**Achieved** End of life replacement. The other two Wellington pumps VSD's have already been replaced	Healthy environment
	Project 1.4 – Replace the suction isolation valves in the pumps of the Waterloo Water Treatment Plant	**Achieved** End of life replacement for all eight suction isolation valves	Healthy environment
	Project 1.5 – Upgrade the filter flow controls at the Te Marua Water Treatment Plant	**In progress** Part of the way through a two year project. See "Filter flow controls at the Te Marua Water Treatment Plant", p11	Resilient community
	Project 1.6 – Complete investigations and concept design work for building new water storage lakes at Pakuratahi	**Achieved** See "Bulk water supply development strategy", p10	Resilient community Strong economy
	Project 1.7 – Finalise purchase of land at Kaitoke/ Pakuratahi intended for future water storage lakes	**Achieved** See "Bulk water supply development strategy", p10	Resilient community Strong economy
	Project 1.8 – Complete designs for seismic strengthening work at the Te Marua, Wainuiomata and Waterloo water treatment plants and award construction contract	**Achieved** See "Seismic performance of water supply buildings and structures", p11	Resilient community
	Project 1.9 – Complete structural assessments of the Gear Island Water Treatment Plant, and the Ngauranga, Johnsonville and Wainuiomata #1 pumping stations	**Achieved** In addition, a further six buildings and structures were assessed. See "Seismic performance of water supply buildings and structures", p11	Resilient community
	Project 1.10 – Complete investigations and concept design work on the Takapu Road emergency storage lake	**Achieved** See "Options for emergency water supplies for Wellington and Porirua", p8	Resilient community Strong economy

Level of service	Target	**Achievement** and 2013/14 commentary	**10-Year plan 2012-22 community outcomes reference**
	Project 1.11 – Complete the upgrade of gravity-fed reservoirs to battery power system	**Mainly achieved** We upgraded six out of the seven gravity-fed reservoirs scheduled for completion this year. The remaining reservoir will be completed during 2014/15. In total, 24 gravity-fed reservoirs will be upgraded from mains power to battery power supply – 17 gravity-fed reservoirs were upgraded in 2011/12. The battery systems provide enough power to allow the reservoirs to operate normally for three days if the mains power supply is down. Once mains power resumes, the batteries will recharge automatically. The 20 reservoirs that require pumping to fill are not being switched to battery systems as the pumps require more power than batteries can deliver	Resilient community
	Project 1.12 – Complete the commissioning of the Khandallah emergency pumping station	**Achieved** The emergency pumping station is able to provide water from the Ngauranga-to-Karori bulk water pipeline into the local reticulation in the Onslow supply zone when required	Resilient community
	Project 1.13 – Complete assessment of the maximum probable loss (MPL) for water supply assets in the event of a major earthquake	**Achieved** See "Insurance review", p21	n/a
SUSTAINABILITY			
That water supply infrastructure is adequate to meet future needs while minimising environmental impacts	Project 2.1 – Complete design work and cost estimates for installing touch voltage protection in vulnerable areas of our network	**Achieved** A total of 23 sites were assessed against the standard for electrical hazards on metallic pipelines (AS/NZS 4853). Remedial work is programmed to begin in August 2014 with all work due to be finished during the 2014/15 financial year	n/a
	Project 2.2 – Establish new Water Supply Group office in Petone	**Achieved** In October, water supply staff from the Waterloo office and from the Wellington CBD office moved into a new combined office in Petone	n/a
	Project 2.3 – Incorporate all quality (ISO 9001) and environmental (ISO 14001) procedures into the Integrated Management Manual	**Achieved** The IMM provides a standardised approach to procedures as well as a consolidated 'one stop shop' for management procedures	n/a

ANNUAL PERFORMANCE TARGETS

Level of service	Performance measure	Target ref.	Target	**Achievement** and 2013/14 comment	10-Year plan 2012-2022 community outcomes reference
WATER QUALITY					
Provide water that is safe and pleasant to drink	Number of waterborne disease outbreaks	1.1.1	No waterborne disease outbreaks	**Achieved** There were no waterborne disease outbreaks	Healthy environment
	Number of taste complaints related to the bulk water supply	1.2.1	No taste complaints related to the bulk supply	**Not achieved** One event generated taste complaints about the bulk water supply when water was being supplied from the Stuart Macaskill Lakes. See "Geosmin in the Stuart Macaskill Lakes", p13	Healthy environment
	Comply with the requirements of the DWSNZ 2005. Aesthetic and microbiological for treatment and distribution 100% of the time, and chemical requirements 100% of the time	1.3.1	100% compliance with the Drinking Water Standards of New Zealand	**Achieved** We have received confirmation from Regional Public Health that we achieved full compliance. One *E.coli* and one fluoride transgression was recorded by Regional Public Health, no further action required	Healthy environment Quality of life
	Treatment plant and distribution system gradings will be maintained or improved	1.4.1	Maintain Te Marua, Wainuiomata and Gear Island plants at "A1" grading. Maintain Waterloo Water Treatment Plant at "B" grading ("A" or "A1" is not possible in an unchlorinated supply). Maintain distribution system at "a1" grading	**Achieved**	Healthy environment Quality of life
	Operate a quality management system that is certified to ISO 9001	1.6.1	Maintain quality management system ISO certification	**Achieved** Continuing certification was gained in November	Healthy environment Quality of life
	Operate a quality management plan for the Stuart Macaskill lakes	1.7.1	Annual review of quality management system for Stuart Macaskill lakes	**Achieved**	Healthy environment
WATER AVAILABILITY					
Provide a continuous and secure water supply	Maintain water supply to consumers	2.1.1	No shutoffs of bulk water supply network resulting in loss of water or pressure to consumers	**Achieved**	Resilient community
		2.1.2	Improve the resilience of the bulk water supply to catastrophic events such as earthquakes by establishing a methodology for assessing improvements to the resilience of the bulk water supply	**Achieved**	Resilient community
	Maintain reservoir levels and distribution system pressure as per the Bulk Water Supply Agreement	2.2.1	Reservoirs with at least 24 hours storage to be at least 70% full for at least 90% of the time (from customer supply agreement)	**Achieved**	Resilient community
		2.2.2	Reservoirs with at least 24 hours storage to be at least 60% full for at least 98% of the time (from customer supply agreement)	**Mainly achieved** 99% compliance, where 100% is achieved. Out of 540 reservoir-months: • There were 34 reservoir-months in total when the level was below target (6.3%) • 29 of these were due to customer-derived events (5.4%) • 3 of these were due to GWRC planned and pre-notified maintenance (0.6%) • 2 of these were due to GWRC unanticipated faults or works (0.4%)	Resilient community

Level of service	Performance measure	Target ref.	Target	**Achievement** and 2013/14 comment	10-Year plan 2012-2022 community outcomes reference
		2.2.3	Thorndon zone pressure between 80 and 100 metres head for at least 98% of the time, and 85 metres for 90% of the time (from customer supply agreement)	**Mainly achieved** During October, pressure was below 85m for 15% of the time	Resilient community
	The distribution system will be protected from damage	2.4.1	Protecting pipelines – process all mark-out ("Dial Before You Dig") applications within two days	**Achieved**	Resilient community
SUSTAINABILITY					
The water supply infrastructure is adequate to meet future needs while minimising environmental impacts	Sufficient water is available to meet the unrestricted (other than by routine hosing restrictions) demand in all but a drought situation that has a severity equal to or greater than a 1 in 50 year drought	3.1.1	Modelled probability of annual water supply shortfall (calculated annually) is no greater than 2%	**Achieved** The Annual Shortfall Probability (ASP) for the bulk water supply as at 30 June 2014 is 0.4%	Strong economy
	Achieve full compliance with all resource consents	3.2.1	Full compliance with Resource Consents	**Achieved**	Healthy environment
		3.2.2	Annual review of relevant environmental legislation	**Achieved**	Healthy environment
		3.2.4	HSNO location and stationary container test certificates are current	**Achieved** All certificates are current	Healthy environment
	Maintenance plans are produced for all equipment and critical maintenance is not deferred	3.3.1	Asset management – execution of maintenance plans. 95% of compliance maintenance activities are carried out on time	**Achieved** 95.1% of compliance maintenance activities were completed on time	n/a
	Comprehensive Asset Management Plan (AMP) is in place to guide maintenance, renewal and replacement programme so that assets are replaced or refurbished to maintain overall asset condition rating	3.4.1	Asset management – annual review of Asset Management Plan	**Achieved** The AMP was updated as at 30 June 2014	n/a
	Maintain an active, up-to-date, health and safety management system that helps achieve the requirements of the HSEA	3.5.1	Health and Safety system meets the requirements of the ACC Workplace Safety Management Practices Standards – Tertiary level	**Achieved**	n/a
		3.5.2	Health and Safety – ratio of proactive to reactive reports is no less than 2:1	**Achieved** Ratio 4.5:1	n/a
		3.5.3	Health and Safety – lost time injury frequency rate is less than 1 incidents/10,000 hours	**Achieved** Lost time rate 0.1/10,000 hours	n/a
		3.5.4	Health and Safety – lost time injury severity rate is less than 1 day/10,000 hours	**Achieved** Injury severity rate 0.62 days/10,000 hours	n/a
		3.5.5	Annual review of all Hazard Registers	**Achieved** Hazard Registers were reviewed in December	n/a
	Motivation – our staff are engaged and feel valued	5.1.1	People – ratio of days worked to sick days is greater than 30:1 (based on 224 working days/year)	**Achieved** Ratio of workdays to sick days was 47:1	n/a
	Direction – our staff know what is expected and understand the priorities	6.1.1	People – performance review discussions for all staff are six monthly	**Achieved**	n/a
		6.1.2	All job descriptions reviewed annually and updated (at the end of year performance reviews)	**Achieved**	n/a

Level of service	Performance measure	Target ref.	Target	**Achievement** and 2013/14 comment	10-Year plan 2012-2022 community outcomes reference
	Adopt all practicable means to prevent pollution of the environment	7.1.1	All solid waste to consented landfill	**Achieved** All solid waste was sent to consented landfill (Silverstream)	Healthy environment
		7.1.2	All liquid waste removed and disposed as per code of practice. Waste disposal to be reviewed – site to be visited as part of our Environment Aspects Register	**Achieved** All liquid waste was disposed of at the Seaview depot. A site inspection was carried out on 4 September 2013	Healthy environment
		7.1.3	Environmental – no accidental discharges of substances with the potential of harming the environment	**Achieved**	Healthy environment
		7.1.4	Environmental – annual audit of chemical delivery and discharge procedures	**Achieved** Audits completed for all relevant procedures	Healthy environment
	Conserve non-renewable resources such as fuels, energy and materials and to minimise waste	8.1.1	Non-revenue water is +/ – 2%	**Achieved** See "Water delivery efficiency", p15	n/a
		8.1.2	Environmental – complete at least 80% of annual test programme for pump efficiency testing	**Achieved** 100% of the pump performance testing programme was completed	Healthy environment
	Consider the environmental implications of business decisions	9.1.1	Provide awareness training for all staff and specific training to all staff whose actions have potential environmental impacts – within three months of commencing employment	**Achieved**	Healthy environment
		9.1.2	Include environmental performance as an attribute when assessing tenders for all sealed contracts (as defined in the contract works procedure)	**Achieved**	Healthy environment
	Operate an environmental management system that is certified to ISO 14001	10.1.1	Environmental management system ISO certification maintained	**Achieved** Continuing certification was gained in November	Healthy environment
	Ensure that the actual direct operating costs do not exceed the budgeted value	11.1.1	Direct operating costs do not exceed budget	**Achieved**	n/a
	Areas of significant operational expenditure will be routinely monitored and opportunities for cost reduction will be identified	12.1.1	Unfavourable variances greater than $20,000 or 10% of budget are identified and reported on monthly	**Achieved**	n/a
		12.1.2	Power and generation usage and costs monitored and reported monthly	**Achieved**	n/a
		12.1.3	Chemical use is monitored and reported monthly	**Achieved**	n/a
	Maintain healthy customer relationships	14.1.1	Consult with the customer territorial authorities regarding the content of each proposed capital works programme (annual plan)	**Achieved** The capital expenditure programme was consulted on at the May 2014 customer meeting	n/a

Financial statements

These financial statements are extracts from Greater Wellington Regional Council's audited financial statements.

COMPREHENSIVE INCOME STATEMENT

For the year ended 30 June 2014

	Notes	2014 Actual $000	2014 Budget $000	2013 Actual $000
Operating revenue				
Water supply levies		25,635	25,635	24,890
Internal revenue		-	7	565
Other revenue (interest and external)	1	1,519	930	1,265
Total operating revenue		**27,154**	**26,572**	**26,720**
Operating expenditure				
Personnel costs		4,352	3,686	3,730
Contractor and consultant costs		3,187	2,979	2,213
Internal consultant costs	2	695	712	1,243
Interest costs		3,341	3,062	3,586
Depreciation		11,453	8,289	8,257
Loss/(gain) on sale/disposal		227	(52)	4,372
Movement in doubtful debt provision		-	-	-
GWRC overhead charge		1,445	1,445	1,378
Operating expenditure	3	8,552	9,672	9,167
Total operating expenditure		**33,252**	**29,793**	**33,946**
Net operating surplus/(deficit) for the year		**(6,098)**	**(3,221)**	**(7,226)**
Other comprehensive income				
Unrealised revaluation gains (losses)		3,478	-	112,672
Other reserve and equity movements		2	-	(65)
Total comprehensive income for the year		**(2,618)**	**(3,221)**	**105,381**

STATEMENT OF CHANGES IN EQUITY

For the year ended 30 June 2014

	2014 Actual $000	2014 Budget $000	2013 Actual $000
Equity as at 1 July 2013	**407,228**	**407,228**	**301,800**
Total comprehensive income for the year	(2,618)	(3,221)	105,381
Other reserve and equity movements	452	-	47
Equity as at 30 June	**405,062**	**404,007**	**407,228**
Components of equity:			
Closing accumulated funds	187,292	190,152	193,222
Closing other reserves	153	-	151
Closing asset revaluation reserve	217,617	213,855	213,855
Equity as at 30 June 2014	**405,062**	**404,007**	**407,228**

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

BALANCE SHEET

As at 30 June 2014

	Notes	2014 Actual $000	2014 Budget $000	2013 Actual $000
Equity				
Closing accumulated funds as at 30 June		**405,062**	**404,007**	**407,228**
Represented by:				
Non-current liabilities				
Public debt	4	60,578	59,785	54,275
Total non-current liabilities		**60,578**	**59,785**	**54,275**
Current liabilities				
Accounts payable		1,714	629	1,714
Employee entitlements		532	-	553
Total current liabilities		**2,246**	**629**	**2,267**
Total liabilities		**62,824**	**60,414**	**56,542**
Non-current assets				
Property, plant and equipment	5	441,236	438,255	439,013
Intangible assets	6	211	240	240
Investments	7	20,925	20,952	19,241
Total non-current assets		**462,372**	**459,447**	**458,494**
Current assets				
Accounts receivable		2,967	2,829	2,828
Stocks	8	2,492	2,145	2,367
Accrued revenue/prepayments		55	-	81
Total current assets		**5,514**	**4,974**	**5,276**
Total assets		**467,886**	**464,421**	**463,770**
Total net assets		**405,062**	**404,007**	**407,228**

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

FUNDING IMPACT STATEMENT

For the year ended 30 June 2014

	Notes	2014 Actual $000	2014 Budget $000	2013 Actual $000
Sources of operating funding				
General rate				
Targeted rates				
Subsidies and grants for operating purposes				
Interest and dividends from investments				
Fees, charges and targeted rates for water supply				
Fines, infringement fees and other receipts		27,154	26,571	26,166
Total operating funding		**27,154**	**26,571**	**26,166**
Applications of operating funding				
Payments to staff and suppliers		16,918	16,511	15,802
Finance costs		3,341	3,728	3,586
Internal charges and overheads applied		1,445	1,445	1,373
Total application of operating funding		**21,704**	**21,684**	**20,761**
Surplus/(deficit) of operating funding	**9**	**5,450**	**4,887**	**5,405**
Sources of capital funding				
Subsidies and grants for capital expenditure		-	-	-
Increase/(decrease) in debt		6,303	6,286	5,413
Gross proceeds from asset sales		(83)	52	72
Total sources of capital funding		**6,220**	**6,338**	**5,485**
Applications of capital funding				
- to meet additional demand		5,066	4,500	1,556
- to improve level of service		3,898	1,345	5,587
- to replace existing assets		1,022	4,189	2,705
Increase/(decrease) in investments		1,681	1,342	1,107
Increase/(decrease) in reserves		3	(151)	(65)
Total applications of capital funding		**11,670**	**11,225**	**10,890**
Surplus/(deficit) of funding		**-**	**-**	**-**
Depreciation on water assets		**11,453**	**8,289**	**8,254**

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

This statement is not an income statement. It excludes all non-cash transactions such as depreciation and valuation.

All figures on this page exclude GST.

Notes to the Financial Statements

For the year ended 30 June

1. STATEMENT OF ACCOUNTING POLICIES

A Reporting entity

The Greater Wellington Regional Council is a regional local authority governed by the Local Government Act 2002. For the purposes of financial reporting Greater Wellington Regional Council is designated as a public benefit entity. The entity, Greater Wellington Water (GWW) is a semi-autonomous business unit of the Greater Wellington Regional Council. GWW collects, treats and distributes potable water to four Territorial Authority customers.

B Statement of compliance

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

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

Accounting judgments and estimations

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

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

C Accounting policies

Basis of preparation

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

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

Budget figures

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

Water supply levies

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

Property, plant and equipment

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

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

Property, plant and equipment are categorised into the following classes:

- Regional water supply land assets
- Regional water supply infrastructural assets
- Regional water supply office equipment
- Regional water supply minor equipment
- Regional water supply motor vehicles
- Regional water supply capital work in progress

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

Stocks

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

Depreciation

Depreciation is provided on a straight-line basis on all tangible property, plant and equipment other than land and capital works in progress, at rates which will write off assets, less their estimated residual value over their remaining useful lives.

The useful lives of major classes of assets have been estimated as follows:

- Regional water supply infrastructural assets – 3 to 150 years
- Regional water supply administrative buildings – 10 to 50 years
- Regional water supply minor equipment – 3 to 15 years
- Regional water supply vehicles – 5 to 10 years

Capital work in progress is not depreciated.

Intangible assets

Software is carried at cost less any accumulated amortisation and impairment losses. It is amortised over the useful life of the asset as follows:

- Software – 1 to 5 years

Accounts receivable

Accounts receivable are stated at estimated net realisable value after allowing for a provision for doubtful debts. Specific provisions are maintained to cover identified doubtful debts.

All known losses are expensed in the period in which it becomes apparent that the receivables are not collectable.

Goods and services tax

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

Employee entitlements

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

Funding statement

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

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

Changes in accounting policies

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

2. INTERNAL CONSULTANT COSTS AND REVENUE

Internal consultants costs comprises the costs of the Engineering and Projects team. These statements contain internal transactions that are eliminated on the consolidation of the Greater Wellington statements.

3. OPERATING EXPENDITURE

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

4. LONG-TERM PUBLIC DEBT

	2014 Actual $000	2013 Actual $000
Balance at 1 July	**54,275**	**48,892**
New loans	9,764	9,528
Operating cash surplus applied to debt repayment	(3,461)	(4,145)
Balance at 30 June	**60,578**	**54,275**

All public debt obligations are fully secured against the rateable property of Greater Wellington Regional Council. The interest rate charged on the facility as at 30 June 2014 was 7.00% p.a. Any operating cash surplus is used to retire debt.

5. PROPERTY, PLANT AND EQUIPMENT

2014	Deemed cost $000	Revaluation reserve $000	Accumulated depreciation $000	Net book value $000
Land	2,926	10,384	-	13,310
Water supply infrastructure	218,482	207,083	10,497	415,068
Office equipment	305		(299)	6
Plant and equipment	112	-	5	107
Motor vehicles	1,549	-	995	554
Work in progress	12,191	-	-	12,191
	235,565	**217,467**	**11,796**	**441,236**

2013	Deemed cost $000	Revaluation reserve $000	Accumulated depreciation $000	Net book value $000
Land	2,926	10,384	-	13,310
Water supply infrastructure	213,943	203,306	1,202	416,047
Office equipment	315	-	283	32
Plant and equipment	77	-	1	76
Motor vehicles	1,631	-	884	747
Work in progress	8,801	-	-	8,801
	227,693	**213,690**	**2,370**	**439,013**

Regional water supply plant and equipment assets were revalued by John Freeman, FPINZ, TechRICS, MACostE, Registered Plant and Machinery Valuer, a Director of Bayleys Valuations Ltd at 30 June 2013 using Optimised Depreciated Replacement Cost (ODRC) methodology. Water supply buildings were revalued by Paul Butcher, BBS, FPINZ, Registered Valuer, a Director of Bayleys Valuations Ltd at 30 June 2013 using Optimised Depreciated Replacement Cost (ODRC) methodology. Land was revalued by F T Rutherford, BBS (VPM) ANZIV of Baker Associates at 30 June 2013. Further asset revaluations are planned and these will be undertaken regularly. Water Supply Infrastructure Assets are defined as those assets which make up the supply and distribution of water and these are valued at their component levels respectively. GWW's asset information system holds detailed valuation information on each item. Property, plant and equipment have been accounted for in accordance with NZ IAS 16.

6. INTANGIBLE ASSETS

2014	Deemed cost $000	Revaluation reserve $000	Accumulated depreciation $000	Net book value $000
Computer software	1,448	-	1,237	211

2013	Deemed cost $000	Revaluation reserve $000	Accumulated depreciation $000	Net book value $000
Computer software	1,440	-	1,200	240

7. INVESTMENTS

	2014 Actual $000	2013 Actual $000
Asset rehabilitation fund	20,772	19,090
General reserve	153	151
	20,925	**19,241**

The Water Group contributes annually to an asset rehabilitation fund. Interest earned on the fund is capitalised annually.

8. STOCKS

	2014 Actual $000	2013 Actual $000
Operational chemicals and spares	252	343
Seismic and operational pipeline spares	2,240	2,024
	2,492	**2,367**

Chemical stocks represent those stocks held to reasonably cover operating requirements in the foreseeable future. Capital spares include seismic stock held to make emergency repairs in the event of a major untoward event.

9. RECONCILIATION OF FUNDS FROM OPERATIONS TO OPERATING SURPLUS

	2014 Actual $000	2013 Actual $000
Reported surplus/(deficit)	(2,618)	109,250
Add/(less) non-cash items:		
Depreciation	11,453	8,257
Reserve movements	(3,612)	(112,476)
Loss/(gain) on sale	227	471
Total non-cash items	**8,068**	**(103,748)**
Net funds from operating activities	**5,450**	**5,500**

10. FINANCIAL INSTRUMENTS

Currency risk

The Water Supply Group had no foreign currency exposure at 30 June 2014.

Credit risk

Financial instruments which expose Greater Wellington Water to credit risk are principally bank balances, receivables and investments. A provision for doubtful receivables has been maintained and the subject of a regular review. Bank accounts are held with New Zealand registered banks in accordance with Greater Wellington Water's policy.

Concentration of credit risk

Greater Wellington Water derives the majority of its income from the regional water supply levy. Regional water supply levies are collected from the four Wellington metropolitan city councils.

Interest rate risk

Greater Wellington Water's debt is managed by Greater Wellington's Internal Treasury unit. A fixed rate of interest is charged by the unit which minimises the exposure of Greater Wellington Water to interest rate fluctuations.

Fair values

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

11. RELATED PARTIES

Greater Wellington Water contracts from and to other groups of GWRC for some operational services. All such transactions are carried out on normal commercial terms.

12. CONTINGENCIES

As at 30 June 2014, Greater Wellington Water had no contingent liabilities (June 2013 $0).

13. COMMITMENTS

Greater Wellington Water leases Level 6, IBM House, 25 Victoria Street, Petone, Lower Hutt from Grant Thornton (Receivers) on an arm's length basis. As at 30 June 2014, GWW had capital works programme contractual commitments of $749,316 (30 June 2013: $560,727).

The Greater Wellington Regional Council promotes **Quality for Life** by ensuring our environment is protected while meeting the economic, social and cultural needs of the community

For more information contact the
Greater Wellington Regional Council:

Wellington office
PO Box 11646
Manners Street
Wellington 6142

T 04 384 5708
F 04 385 6960

info@gw.govt.nz
www.gw.govt.nz

October 2014
GW/WS-G-14/81

Please recycle
Produced sustainably