

## Three waters report and outlook

For the quarter ending 31 March 2017





Cover picture: At the Petone fair. Community events are a great opportunity to have a conversation with people about water storage and earthquake preparedness



A leak that we think dated back to the Kaikoura earthquake had scoured out a large hole beneath a busy Wellington street. We had to shut off and drain the main supply to Wellington in order to fix it.

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## Earthquake after effects rumble on

As for others in the region, the aftermath of the November 14 Kaikoura earthquake continued to have an impact on our business. Uncertainty remains over the strength of our building, where repairs are still in progress, and while the net effect on our busy capital works programme has been relatively minor, there was a noticeable earthquake effect on operational spending. There's also a chance that the earthquake may be related to increased bacterial activity in the aquifer.

Nationally and locally, water quality issues remained in the news, while network leaks added an extra dimension to conversations around network and operational resilience.

The inquiry into Havelock North's water quality failure keeps that issue topical, and our own positive E-coli results further heightened our sensitivity regarding non-chlorinated supply management. This ultimately led to the chlorination of Hutt City's water supply in early May.

We have been contributing to a regional initiative to coordinate and improve household infrastructure resilience. Based on personal water storage for seven days, it means we also need to prioritise our efforts in this area, which may mean some programme adjustments.

## **Three waters report and outlook** For the quarter ending 31 March 2017

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#### New connection applications Four cities





Previous quarter



Year to date: 230 This quarter, last year: 111 Year to date, last year: 295





# Summer conservation campaign highlights reducing waste

Our campaign focusing on reducing waste proved a good decision, as it was not really a summer requiring much in the way of 'saving' water. Summer remains a good time to highlight the value of water however, and it makes good sense to have an option other than just supporting watering restrictions.

We also rolled out our new display stands, that encourage people to get hands on with our messaging. We'll be able to re-use these stands for future campaigns, including resiliencefocused messaging.

We delivered 13,294 million litres of safe drinking water to 144,000 connections during this quarter.

In the same quarter last year (January – March 2016), we delivered 13,899 million litres.



Common Ground Public Art Festival, 25 Feb - 4 March 2017



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Your public water company. Wellington Water





# Bacterial activity at aquifer bores prompts chlorination action

We've seen an increased level of bacterial activity in tests at the aquifer bores in Knights Road, Lower Hutt. These bores supply water to the Waterloo Treatment Plant, and from there, the water is piped throughout the Hutt Valley and to Wellington.

The bore at Colin Grove is not being used following the positive E.coli result in December and a review by Regional Public Health. There was a second positive E.coli result on 4 February 2017 (this time at the Naenae reservoir), and a third in early April.

There has also been an increasing trend in total coliforms at a number of other sites. A multi-disciplinary investigation has so far not identified the cause of the results, and the trend is being treated as a potentially serious issue.

While the Wellington supply is chlorinated to provide a barrier against contamination, aquifer water supplied to the Hutt Valley has not been chlorinated in the past. As a precaution against the increased level of bacterial activity, we're now chlorinating the Hutt Valley supply. A number of investigations into possible causes for the bacterial activity, and into treatment options, are now under way.

### Macaskill Lakes algae and taste issues

A project to modify the treatment process at Te Marua Water Treatment Plant is due to commence in May 2017. This will improve the capability of the water treatment plant to manage removal of cyanotoxins and taste and odour compounds should they be detected in the Macaskill Lakes.

Test results: Light blue bars show the numbers of coliforms detected at all bores. Note that not all coliforms are harmful. The dark blue line is a trend line, taken from one bore - it shows the rising trend in activity. The pink bars are positive e-coli results. The horizontal yellow bars show when and how long chlorine was introduced as a result of the e.coli.

### Safe and healthy water – customer service goals

Service Goal		Aspirational Direction	YTD	TD Quarterly			Status		
		/ opirational Direction	Status	Q1	Q2	Q3	Q4		
	We provide safe and healthy drinking water	Stay the same		٠	٠	٠	۵		
	We operate and manage assets that are safe for our suppliers, people and customers	Stay the same	۵	٠	٠	٠	•		
<b>N</b>	We provide an appropriate region-wide fire-fighting water supply to maintain public safety	Stay the same	۵	٠	٠	٠	٠		
	We minimise public health risks associated with wastewater and stormwater	Stay the same	•		٠	٠	٨		

We currently comply with the New Zealand Drinking Water Standards



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# Challenging quarter for network overflows

All our projects and activity were carried out without undue environmental impact in the quarter, with the exception of equipment failures which led to a wastewater overflow and an unconsented discharge. These and heavy rainfall events prompted warning signs to be posted at Lyall Bay and Titahi Bay; otherwise bathing beaches were open all summer.

For a brief period however media and social media took those messages to mean all beaches were closed. This highlights the issue we have of being careful to re-informing people every time of what the warnings mean, and the need to provide reliable, authoritative sources of information.

Unusual blockages and leaks added to the list over summer. We worked closely with Regional Public Health particularly on a contamination issue in Wellington Harbour, to ensure we were taking the right precautions, without creating unnecessary drama.

### Control system failure diverts wastewater

A controller failure and back-up system error were responsible for a discharge from the short outfall pipe at Moa Point in March. Approximately 6,000m3 of untreated wastewater was discharged on Wednesday 15 March. Our operators are reviewing their testing procedures and the equipment.

We let Regional Public Health know right away, and warning signs were erected in Moa Point Road, Tarakena Bay and Heu Te Taka Peninsula. The beach at Lyall Bay was not affected, and water quality testing of the coastal waters near the discharge site carried out. Slightly elevated coliform levels were noted the day after the discharge, and these were back to normal the next day.



At the short outfall pipe the morning after the discharge.

#### Consent compliance 1 January – 31 March 2017 (snapshot covering these activities)

Nature of work	Target	Status
Extracting water	Full compliance	<
Discharging water	Full compliance	<ul> <li>Image: A set of the set of the</li></ul>
Wastewater – dry weather overflows	Full compliance	<ul> <li>Image: A second s</li></ul>
Wastewater – wet weather overflows	Full compliance	<ul> <li>Image: A start of the start of</li></ul>
Stormwater discharges	Full compliance	<ul> <li>Image: A start of the start of</li></ul>
How we carry out our work	Full compliance	<ul> <li>Image: A start of the start of</li></ul>

on track
 some cause for concern
 not complying

Wellington



## Rainfall events increase overflow incidents

We managed around 382 incidents this quarter (up from 312 from the same quarter last year) covering blockages, overflows, leaks and faults.

No enforcement orders, infringement notices or abatement notices were received. However, we did receive formal warnings for one unauthorised sewage discharge to the Porirua catchment (Pauatahanui Inlet and Porirua Harbour); one unauthorised discharge of untreated sewage to the Wellington catchment (Houghton Bay); and, for unauthorised works in the Hutt River that were undertaken in October 2016.

### Respectful of the environment – customer service goals

Service Goal		Aspirational Direction	YTD	Quarterly Status					
		Aspirational Direction	Status	Q1	Q2	Q3	Q4		
	We manage the use of resources in a sustainable way	Improve	۵	٠	۵	٠			
	We will enhance the health of our waterways and the ocean	Improve	۵		۵	٠	6		
	We influence people's behaviour so they are respectful of the environment	Improve	•	•		6	6		
	We ensure the impact of water services is for the good of the natural and built environment*	Improve		٠	٠	٠	6		



## HARBOUR QUALITY

**Target:** Each monitored beach is suitable for recreational use 90% of the days during bathing season (1 Nov - 31 Mar)



### FRESH WATER QUALITY: % of sites compliant

Target: 90% of all freshwater sites have a rolling 12 month median < or = 1000cfu/100ml3



# Connecting with the community on proposed new city reservoir

Connecting with and hearing from residents who will be most affected by the construction of the Prince of Wales/Omāroro Reservoir in Wellington city is a priority for us as we develop consent applications for the initiative.

Project Manager Maria Maillo said, "We know that the expected two-year construction of the reservoir will be disruptive for residents. So we want to make sure they're aware of their opportunities to influence the construction methodology by submitting on our applications under the Town Belt and Resource Management Acts."

"After looking at who had attended the first community open days, we decided to make an extra effort to target residents of Rolleston and Hargreaves Streets who will be most affected by the construction. We held a community barbeque on what turned out to be national 'Neighbours' Day." We liaised with Housing New Zealand, on whose land we set up the barbeque, and with Wellington City Council. Housing New Zealand staff came along to lend their support and liaise with their tenants, and Wellington City Council's community team supplied packets of seeds (Growing Neighbourhoods) and emergency preparedness posters to give away.

The event was a positive exercise and another step towards achieving community input into what will be one of the largest projects to be built in the Town Belt for many years.

The planned Prince of Wales/Omāroro Reservoir will be a highly-resilient, fullyburied 35 million-litre concrete reservoir. It'll double water storage in central Wellington for emergency and operational requirements and provide water for the growing city population.



Residents near the proposed Prince of Wales / Omaroro reservoir stop by for a sausage and a chat about the project.



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### Resilient networks support our economy

## Community preparedness focus

Following the Kaikoura earthquake, there has been a step change in resilience planning in Wellington. This has resulted in the development of the Community Infrastructure Resilience Programme. This programme seeks to improve the community's preparedness for an earthquake. It builds on work undertaken through the water supply and waste water resilience projects.

### Flood modelling helps council budgeting

A number of investigations have been prompted where a local response cannot address the cause of the flooding. Our ability to predict the impact of flooding and any planned work relies on the use of hydraulic models. These will help councils budget for future improvements and to address known flooding risk locations. Documented post-event response processes have improved our ability to respond to flooding events and communicate promptly to affected customers.

## Resilient networks support our economy – customer service goals

	Service Coal	Aspirational Direction	Service Coal Assirational Direction		Quarterly Status				
	Service Goal	Aspirational Direction	Status	Q1	Q2	Q3	Q4		
	We minimise the impact of flooding on people's lives and proactively plan for the impacts of climate change	Improve		٠	٠	٠	•		
	We provide three water networks that are resilient to shocks and stresses	Improve	٠	٠	٠	٠	•		
ÎÌ	We plan to meet future growth and manage demand*	Improve	•	٠	٠	٠	٠		
	We provide reliable services to customers	Stay the same	۵	٠	٠	٠	٠		

#### THREE-WATERS NETWORK AVAILABLE TO CUSTOMERS

Rolling 12 months of data







## New chamber "not needed," says James, saves \$20,000

Auto shutoff valves (ASVs) prevent a reservoir from draining in a large earthquake, meaning precious water isn't lost. As part of our resilience programme of work, we identified that the Point Howard Reservoir needed an ASV installed

Designs for a new chamber that would house the ASV had already been done, involving capital cost and ongoing maintenance. James Craig, Engineering Technician recognised the constraints of the new design.

"The chamber we had designed would have had limited headspace, meaning that anyone entering would need confined space training. In addition there would have been a cost to maintain it. I wondered if we could get away with not replacing the chamber, so I took another look at the existing one" says James.

He found that the existing chamber was well ventilated and had a normal height access door. He saw the opportunity to install the ASV in the existing chamber, saving in capex and maintenance costs.



"By not going ahead with the original design, we've saved about \$20,000 in capital costs, plus ongoing maintenance. I'm pretty pleased with that" says James.

The old value chamber at Point Howard was found to be suitable for installing the new shut-off valve, and provided easier access than the proposed design.

### Switching off the pumps prevents power cut

Our pumps at the Waterloo Water Treatment Plant draw a lot of electricity - enough to power more than a hundred homes. We take part in a programme that means on rare occasions we're asked to switch off the power to the motors and then restart them a short time later. At the same time, the energy released as the pumps slow down is returned to the electricity network.

Early in March the national grid frequency dropped to 47.4Hz in the South Island and to 49.2Hz in the North Island (from the normal 50 Hz). This was very close to triggering power outages. We returned nearly a million watts to the network, which is not much in the grand scheme of things, but every bit helps (especially if you are one of the 100 homes!). Overall we contributed to avoiding a significant power outage in the North Island. We receive revenue each month for participating in the programme, and the impact on operations is usually not significant. It's a great example of a win-win arrangement.





### **Total Recordable Injury Frequency Rate** Rolling 12 months ratio



## Event reports level out

Our general reporting trend with contractors is increasing, as the safety culture of openly 'speaking up' and recording is becoming embedded. The number of learning events is dropping back, normalising after the surge that resulted from the introduction of the new Q-Pulse system, and new legislation and our promotion of a health and safety culture. Nevertheless, we'll continue to encourage our employees and contractors to keep up the safety communications.

### Total Recordable Injury Frequency

This trend is slowly reducing, as total recordable injuries are lessening each successive quarter. Nearly all total recordable injuries were cuts to fingers or hands, and back strains which required physiotherapy treatment. Many of these events could have been prevented if people did not rush their work. We'll be reinforcing that their safety comes first, to plan times carefully and not rush, and to to manage tasks.



The Stuff report on repairs to a major leak in the CBD landed us in some hot water, when careful eyes noted our site may have had inadequate shoring. Our investigation found the safety was OK for the job - but it's great to have people watching out for these things, and the review team found 12 areas for medium to longterm development. Picture: Stuff/Fairfax

## Work programme makes most of quiet city summer

Our supply partners have been busy this quarter. Though not a stellar summer, it is the time of year when wastewater and stormwater flows tend to be lowest, so we target the trickier of these jobs as well as work in private property.

Anyone visiting the Wellington CBD over summer is likely to have encountered some of our contractor teams at work. Wellington typically empties out over summer – we know this from the water demand – so it's a good time to undertake work that we know is going to affect central city traffic. But it's also a busy time of year for retailers, so we have to work closely with them to make sure we reduce the impact on them. Adding to the busy workscape this summer was demolition work in Molesworth Street and Tory Street following the earthquake.

The construction industry remains upbeat and the industry remains constrained, leading to upwards price pressure in some areas. The construction price index has remained relatively flat over the first two quarters of the year, but did increase by 2.6% in the December quarter.

There are particular pressure spots within the industry, particularly with infrastructure and housing in the Auckland market, and in Wellington related to

seismic strengthening works, and infrastructure. We are still competing for resources with NZTA's ongoing programme of significant roading projects.

We had 290 planned projects in our capital expenditure programme this year, worth an estimated \$70 million. All of our physical works for the financial year were tendered by the end of the quarter. This means a better balanced workload across the year and as we move to a three year rolling programme we plan to begin advertising and awarding our planned 2017/18 construction contracts.

2016/17 programme is targeted at pipeline renewals and upgrades (\$38 million), structural strengthening and other pump station upgrades and renewals works (\$11 million) and bulk water work (\$10 million). We also have \$10 million worth of forward design and investigations within the programme; this work is important to smooth the ow of projects being tendered, ensuring our contractors have the resources they need to do the work.

Overall we're about 10% ahead of where we were at the same time last year with our programme.

During the last quarter we have also reprioritised some work to make funds available for community infrastructure resilience work. We're forecasting we will complete 92% of our planned projects by 30 June 2017.



To the end of March our work programmes was running behind budget, but still about 10 per cent of last year.

## Central city work takes extra effort to reduce impact

Digging upstreets in Wellington's CBD is always a tricky business. There's plenty of customers to contend with, and retailers, bar and café owners, apartment dwellers and office workers all have different requirements when it comes to shutting down water or digging up streets.

Throw in an earthquake six weeks before the start date and a kick off of 28 December and it starts to get even more interesting.

Late last year we got dispensations from Wellington City Council to work through the Christmas/New Year period in the CBD – that's so we could get in and get the disruptive work done while most of Wellington was on holiday.

Although the work was scheduled and traffic management plans in place we needed to take five after the earthquake to make sure we could still do this work with everything else going on in the area. We sat down with our colleagues at Wellington City Council and worked a way through it so that our jobs and the carpark demolition could take place as planned.

We also needed to plan around New Year's Eve celebrations and the Wellington Sevens.

This work included trenching in Cable Street, a major thoroughfare along the Quays in Wellington. Normally working on a busy street like this is a strictly off-peak and out of hours' activity. With dispensations in place we started on 28 December and finished a month ahead of schedule in early February.

In Allen Street, we visited all the businesses three months prior to starting to see when the best time to do the work would be. The office workers were keen for early January – they were all still on holiday. For the bars and retailers, the busiest time of year is over Christmas and the restaurant owners had mixed views. Majority ruled and we started early January and finished mid-February, on time.

Both these jobs needed lots of liaison with residents and businesses in the area which paid off with minimal complaints and jobs that ran to schedule.



Jamie Nicholas from the Construction Contracts team oversees excavation for a water main renewal in down-town Wellington's Allen Street.

## Regional

In March 2017, the Wellington Regional Water Forum (our five councils plus Kapiti Coast District Council and the three Wairarapa councils) met to discuss the Local Government Commission's (LGC) report called "Analysis of the Three Waters in the Wellington Region" and to hear the new Minister of Local Government's views on her portfolio. She expressed her support for shared services and increasing collaboration across council boundaries where it is in the interests of the local community. Most members of the Forum were open to adopting a more collaborative approach to three water issues across the wider region. The LGC asked the Forum to develop a plan by 30 June 2017 that would help guide these collaborative discussions.

The Wellington Water Committee provided a submission on the proposal to establish a single Wairarapa District Council. The submission encouraged increased collaboration between any new council and Wellington Water.

### National

We expect to receive the first round of findings from the Inquiry into Havelock North Water Supply Contamination on 12 May.

We note the NPS for Freshwater Management goal to have 90% swimmable water by 2040 and are progressing discussions with GWRC on this topic.

We have drafted a submission on the proposal for an Urban Development Authority but our content only relates to infrastructure and we have shared this with our shareholding councils.

Water NZ launched its first ever national customer satisfaction survey and the results will be provided at the Water NZ Conference in September 2017



Wellington Water's Samantha McCluskey, in the high vis vest, serves up sausages and drinks at a barbeque in Queen St, Petone, at the conclusion of a major stormwater and wastewater renewal project.



Hutt City school children took part in a project to test and map surface water quality during the Common Ground Art Festival, in February. We attended the festival and also lent the side of a treatment plant building as a screen, to project a short movie tracing the path of the aquifer from Taita to Matiu Island.