



*It's a change to be writing some brief comment for IrrigationNZ News as CEO of Hawke's Bay Regional Council after three years as CEO of the investment company. Being back in the HBRC role means I'm back to dealing with a myriad of issues and opportunities of which freshwater is but one. However I retain an acute interest in what happens with the RWSS, in particular the forthcoming Supreme Court case relating to the proposed land swap between DOC and HBRC. This is the most important remaining commercial legal barrier to cross.*

*Hawke's Bay has had a very windy, dry and hot summer following a dry autumn and winter, with some brief respite in spring. Soil moisture levels for key sites such as Onga Onga in the Ruataniwha Basin, Bridge Pa on the edge of the Heretaunga Aquifer and Crownthorpe in the middle of the Heretaunga plains recorded numbers either on or below the 10th percentile. So it's been dry! River levels on the major systems held up due to westerly rain in the ranges, but by late January higher flow irrigation takes and a number of takes from smaller streams and tributaries came on ban. Of significance is that the higher minimum flows under Plan Change 6, due to graduate in 2018 with a further lift in 2023, would have resulted in irrigation bans for a number of days in January for all surface water takes across the entire Tukituki catchment, plus reduced water use for all connected groundwater takes. This reinforces that secure water has significant value both directly to irrigators and to the wider economy.*

*Andrew Newman, Chief Executive, Hawke's Bay Regional Council.*

## You've got water but a neighbour's well has 'gone dry'?

As groundwater levels drop in a typical dry Hawke's Bay summer, irrigators too often find themselves in the firing line from neighbours claiming they are to blame for nearby wells running 'dry'. So why do you have water and your neighbour doesn't?

Obviously water levels fluctuate between summer and winter, and between wet and dry years it can be 5 metres or more. Around 8000 bores access groundwater across the region for home supply, stock water, industry, processing and irrigation and around 3000 of the consented takes are metered. During summer, the aquifer comes under pressure as growers optimise water application for their crops.

And this has been a very dry summer. In November and December 2016 Hawke's Bay had less than half its normal rainfall and the main aquifers of Heretaunga and Ruataniwha recorded record low levels earlier than usual. This is when HBRC and well drillers get calls from people whose wells have 'run dry'.

### PUMP TYPES

Irrigators have usually invested in pumps that are installed below the maximum summer groundwater levels, which guarantees water

through the season. But your neighbour may be relying on surface pumps which have limited lifting capacity – less than 8 metres.



In some locations, surface pumps were adequate to supply water year-round but now, with increased pumping, groundwater levels can temporarily drop below the pump intake. Your neighbour will experience this as their well running 'dry', while in reality there is still plenty of water available within the well but they are limited due to their pump design or sometimes the well design.

A submersible pump may be the answer, providing the well is large enough, as the pump can be lowered to reach the water. Ideally the pump intake should be set just above the clean well screen to allow for maximum water level decline.

Older wells may not be fully penetrating the aquifer. A shallow bore drilled some years ago in a wetter season or year can be left high and 'dry' in a dry summer. If they've had problems before, they are likely to keep having them in future dry seasons.

### MAINTENANCE ESSENTIAL

Maintenance of any bore should be done regularly – every 5 to 8 years say local well drillers. This can cost upwards of \$2000, which may put off people with a small domestic bore. A well driller will clear the screen and ensure it isn't corroded and maintain the pump.

Hawke's Bay Regional Council's role is to issue consents for water takes and monitor aquifer levels. Unfortunately without rain, we can't get more water back into the aquifers.

If you are operating within your consent limits and managing your water use to suit your crop needs, you are not taking 'too much' water. However HBRC is taking a firm approach on irrigators who exceed their consent limits.

*Hawke's Bay Regional Council has an infosheet "My Well's Gone Dry!" available on [www.hbrc.govt.nz](http://www.hbrc.govt.nz), search #watermanagement*



## Getting telemetry smart

Telemetry is becoming more popular in Hawke's Bay to record water use, with 43.5% of exercised consents reporting this way (37% of all consents are required to report their water use as part of their conditions). Consent holders either have their own telemetry unit that is installed on a fixed water meter, or they rely on a lessee to have a portable pump with GPS and telemetry to report where and when water was used.

Nine companies can provide fixed telemetry in Hawke's Bay. There's a variation in costs of installation, on-going costs and the ability to view your data so it's worth shopping around. For the latest list go to [www.hbrc.govt.nz](http://www.hbrc.govt.nz) search #WISproviders.

All but one of those companies have websites that you can log into and see the record of your water use, and how close you

are to your allocated volumes and rates of take. You can register to use HBRC's website to view your data. At present, HBRC's website only shows a total for your consent so if you have more than one well on your consent, you can't see the take for each individual well. We are planning to improve that in time for next summer.

Telemetry can only be installed on a meter that has a pulse output, enabling every 100 litres of water that is passing through to be counted. Telemetry calculates how many times 100 litres passes through in 15 minutes and stores that number – for example, if we know that 12m<sup>3</sup> was used in 15 minutes, we can also work out the flow rate, so 12 x 1000/900 equals a flow rate of 13.3L/sec.

This information is uploaded to your telemetry provider's server at fixed intervals,

providing almost real-time data so you can check that your system is complying with the conditions in your consent. This result is also sent to HBRC's server, and we usually have data to 22:45 of the day before. We run this data through software that checks the compliance and writes a report for our Compliance team to follow up if there are any problems.

Telemetry is also a smart tool for your own production management. It keeps track of how much water you are using, when you are using it, compares one seasons use with another and makes writing your GAP reports very easy. When you are applying for new consents, it is invaluable to know exactly how much water you need in wet or dry years; by matching this up with soil moisture level records, you can show that you are using water efficiently.



### TEST YOURSELF!

Reading a water meter can be difficult. Some are electronic and some are mechanical.

If you have an electronic meter, such as the Siemens in the photo, you only need to send HBRC the 5 digits to the LEFT of the decimal point (because the 3 numbers after the decimal point aren't required by your consent conditions). So from this meter, the reading you would send HBRC is the number: 67127(m<sup>3</sup>). In the next edition we'll show a mechanical meter reading.

# Keeping your telemetry smart – maintenance!

When your fixed telemetry is installed, you'll know that it can be quite expensive, so don't overlook maintenance. Like all the equipment on your farm, telemetry needs to be checked regularly. When you look at your data regularly, you'll soon notice if the data has stopped being transmitted to your provider. A quick visual assessment of the unit should pick up anything obvious, such as loose wires or the meter not ticking over. If it isn't obvious, contact your installer and get it fixed.

Telemetry installation companies have been known to set the pulse rate wrong which can appear that you are using ten times more water than you really are. The installers should check this when they install the telemetry but not always. HBRC also checks when portable pumps appear to be pumping at 153 L/sec, because pumps aren't capable of working at that rate!



HBRC has an alarm system for all telemetry units. It will email your telemetry provider and the Water Information Services team if we haven't received your data for 48 hours. We set that time limit because most telemetry companies only send in data once a day, so if one transmission is missed, the data can be picked up the next day without loss. After two missed transmissions, HBRC becomes interested. Telemetry companies also have set alarms to track failed sites.

## Why telemetry units might go offline

- Animals have rubbed against or nibbled at wires and broken connections
- Aerials have been knocked or blown around so no longer point in the optimum direction
- Rats or birds have nested in the telemetry box and broken wires

- Solar panels are in the shade and no longer charge. Have trees grown or is the pump parked too close to hedges or buildings?
- Batteries no longer hold their charge
- The local cellphone tower is offline for maintenance
- The telemetry unit has developed a fault and needs fixing or replacing
- The telemetry unit power is not wired in and someone has unplugged it.

## When we get zeros

We can also have problems where the telemetry unit appears to be working but we are only receiving zeros. This means the meter and the telemetry unit are not talking to each other.

This can happen when:

- The telemetry unit has been unplugged from the meter
- The magnets in the mechanical meter are stuck in one place
- Wires have corroded
- Meter batteries have run flat.

## Checking it

Because of these errors, HBRC now adds a condition into new consents where telemetry is required. This condition states:

*A manual water meter reading shall be taken during the month of June each year. The water meter reading and the date and time the reading was taken shall be provided in writing to the Council (Manager Resource Use) prior to 10 July each year.*

*Advice note: It is recommended that a photograph of the meter, with the meter reading clearly visible, is also provided at the same time as the reading required by condition xx.*

HBRC also provides a self-audit form so you can check your own telemetry – [www.hbrc.govt.nz](http://www.hbrc.govt.nz) search #waterreporting and look under the Related Documents list at the foot of the page. Basically, this helps ensure the meter readings over a period of time match the data coming via telemetry.

# LAWA website

Have you taken a look at LAWA? The website [www.lawa.org.nz](http://www.lawa.org.nz) displays information in an easy-to-understand format so you can keep up to date with local water quantity and quality.

LAWA stands for Land Air Water Aotearoa and is a website service sharing scientific data from all the regional and unitary councils throughout New Zealand. The website partners are the Cawthron Institute, Ministry for the Environment and Massey University. It also has support from the Tindall Foundation. The aim is to help communities better understand their use of natural resources

and how to maintain their quality and availability.

Click on the map for the Hawke's Bay region, then select the topic 'Water Quantity'. The tab 'Surface Water Zones' provides 14 zones. Click on your zone and then on the 'Sites' tab which shows HBRC's monitoring sites – from here you can view the latest flow data with date and time. Under 'Show More Information' you can view graphs for the last 7 or 30 days of flow.

To check aquifer levels in Groundwater



A screenshot of [www.lawa.org.nz](http://www.lawa.org.nz).

zones, click on 'Sites' to get to flow rates, and 'Show More Information' to open up a graph showing aquifer levels for the last 6 and 12 months.

## IN BRIEF

### NEW WATER METERS INSTALLED

Thank you to those of you who have been proactive in installing the water meters required under the 5–10L/sec regulations. If you haven't yet contacted HBRC about how to return your water meter readings or you need some advice, please email [waterinformation@hbrc.govt.nz](mailto:waterinformation@hbrc.govt.nz) or phone Jo Rodgers 06 833 8043. HBRC's Compliance team will be contacting those who have yet to install a meter or have their irrigation take tamper tagged off.

### TANK UPDATE

The TANK stakeholder group has recently been looking at HBRC's complex ground and surface water modelling. This computer system can help them understand the connections between river flows and aquifer water levels across the Heretaunga Plains, plus the impacts on primary production and the regional economy of different management regimes. This model can also help the group to understand nitrogen and phosphorous losses to water, especially the concentrations in the tributaries and the estuaries. The group is also looking at reduction of sediment loss from land and ways to meet objectives for water quality and ecosystem health.

More on [#tank](http://www.hbrc.govt.nz)



### SURFACE WATER TAKES

HBRC gauges rivers and streams on a weekly basis over summer, monitoring locations that are either on, or close to, a ban to ensure the best outcome for the environment and water users. Irrigation ban data is updated weekly on [www.hbrc.govt.nz](http://www.hbrc.govt.nz) (search on #lowflows). Some of the 35 areas regularly gauged for summer flows are switched into 'ban' status as their water flows drop to pre-set low-flow limits. A different approach is taken for irrigators using the Raupare Stream near Hastings. Thanks to commitments made by the Twyford Water User Group, the irrigators ration their use, plus the flow is augmented from a bore at the top of the stream. "This shared approach to irrigation, using a 'global consent' model, means fewer bans lasting for shorter periods, and was negotiated to deal with intense dry conditions," says HBRC Environmental Officer Ian Lilburn.

### USE THE HBRC WEBSITE

A lot of useful information is available for irrigators and for water management on the HBRC website, [www.hbrc.govt.nz](http://www.hbrc.govt.nz). On the menu 'Our Services' click on 'Water' where you will find information about groundwater, groundwater quality and how the aquifers recharge. Or use the keyword search (and yes, use the hashtags and no gaps) to get straight to the pages, e.g. #groundwaterquality or #watermanagement.



## Introducing Tania Diack

Tania Diack has recently joined HBRC's Environmental Compliance team. Her main focus is around water takes (exceedances, meters, compliance), while providing assistance to our pollution response team and undertaking other compliance duties. Tania has over 14 years' experience in local government in Hawke's Bay, working in regulatory roles administering the Resource Management Act and Building Act/Code.