

Subject: Re: ^\_Media^\_ ^\_release^\_ - ^\_Callide^\_

---

From: Mark.Bailey@ministerial.qld.gov.au

To: Zoe.Russell@ministerial.qld.gov.au

Cc: Tam.VanAlphen@ministerial.qld.gov.au; Denise.Spinks@ministerial.qld.gov.au; mangocube6@yahoo.co.uk

Date: Monday, 1 August 2016, 2:00:40 pm AEST

---



Sent from my iPhone

On 1 Aug 2016, at 1:48 PM, Zoe Russell <Zoe.Russell@ministerial.qld.gov.au> wrote:

Hi, this is the release which CS Energy put out on Friday. We weren't aware they were doing this.

I've spoken to Nev and asked that regardless of if we've already announced could they give us a heads up on any media releases etc.

Zoe

---

**From:** CONWAY Neville [mailto:nconway@csenergy.com.au]  
**Sent:** Monday, 1 August 2016 1:43 PM  
**To:** Zoe Russell <Zoe.Russell@ministerial.qld.gov.au>  
**Subject:** Media release - Callide

Hi Zoe,

Yes, great chatting today. Please follow this link to the website for the media release on the Callide Overhaul:

[http://www.csenergy.com.au/media-\(68\)-\(63\)-\(292\)-Callide+B1+overhaul+preview.htm](http://www.csenergy.com.au/media-(68)-(63)-(292)-Callide+B1+overhaul+preview.htm)

And here is the release that Mark and Curtis sent out a few months back:

<http://statements.qld.gov.au/Statement/2016/5/12/callide-b-power-station-gets-31-million-overhaul>

Speak soon.

Kind regards,

**Nev Conway**  
Group Manager Corporate Affairs

<image001.gif>

**Brisbane Office**  
Level 2, HQ North Tower, 540 Wickham Street, Fortitude Valley QLD 4006  
PO Box 2227, Fortitude Valley BC QLD 4006  
Phone +61 7 3854 7710 Mobile N/R

[www.csenergy.com.au](http://www.csenergy.com.au)

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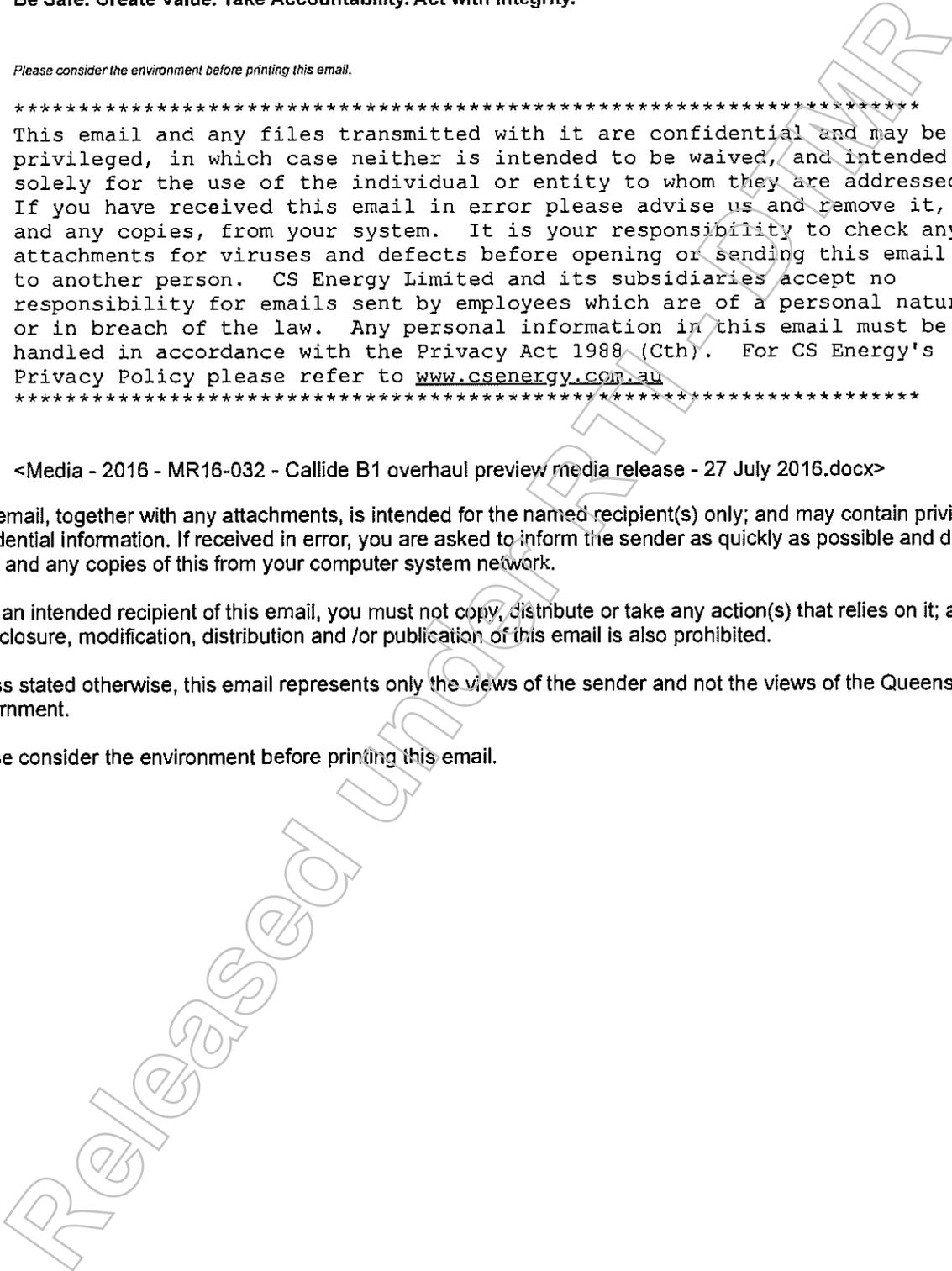
<Media - 2016 - MR16-032 - Callide B1 overhaul preview media release - 27 July 2016.docx>

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Subject: ^\_Philip^\_^\_sent^\_^\_you^\_^\_a^\_^\_new^\_^\_message^\_^\_

From: messaging-digest-noreply@linkedin.com

To: mangocube6@yahoo.co.uk

Date: Wednesday, 3 August 2016 06:03:12 PM AEST



Mark Bailey 

## You have unread messages from Philip



Sch 4 CTPI

Mark,

We have an event on the Thursday the 11th at 5:30pm to officially open our brand new offices. I am unsure if you have received an invite, but you are welcome to join.

Looking forward to... see more

Reply



Opportunity is always within reach. **Get the LinkedIn app.**

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This email was intended for Mark Bailey (MP for State Seat of Yeerongpilly, Minister for Main Roads, Road Safety, Ports, Energy, Biofuels, Water Supply).

[Learn why we included this.](#)

LinkedIn 

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Subject: RE: ^\_Redback^\_ ^\_Invite^\_ ^\_via^\_ ^\_LinkedIn^\_...

---

From: Denise.Spinks@ministerial.qld.gov.au

To: mangocube6@yahoo.co.uk

Date: Friday, 5 August 2016, 9:12:00 am AEST

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Hi

You are now going.

We have been hassling Premier's office for them to indicate if she could go.

Answer now no.... and given you are back that day accepted on your behalf yesterday.

Invite came via solar council

ds

---

**From:** Mark Bailey [mailto:mangocube6@yahoo.co.uk]  
**Sent:** Friday, 5 August 2016 7:45 AM  
**To:** Denise Spinks <Denise.Spinks@ministerial.qld.gov.au>  
**Subject:** Redback Invite via LinkedIn...

Mark,

We have an event on the Thursday the 11th at 5:30pm to officially open our brand new offices. I am unsure if you have received an invite, but you are welcome to join. Ni

Sent from my iPhone

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Subject: ^\_Fwd^\_: ^\_FNQ^\_ ^\_fatality^\_

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From: Mark.Bailey@ministerial.qld.gov.au

To: mangocube6@yahoo.co.uk

Date: Friday, 12 August 2016 09:25:35 AM AEST

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Sent from my iPhone

Begin forwarded message:

**From:** Zoe Russell <[Zoe.Russell@ministerial.qld.gov.au](mailto:Zoe.Russell@ministerial.qld.gov.au)>  
**Date:** 12 August 2016 at 9:09:54 AM AEST  
**To:** "@Premiers Media" <[premiers.media@ministerial.qld.gov.au](mailto:premiers.media@ministerial.qld.gov.au)>  
**Cc:** Denise Spinks <[Denise.Spinks@ministerial.qld.gov.au](mailto:Denise.Spinks@ministerial.qld.gov.au)>, Mark Bailey <[Mark.Bailey@ministerial.qld.gov.au](mailto:Mark.Bailey@ministerial.qld.gov.au)>, Tam van Alphen <[Tam.VanAlphen@ministerial.qld.gov.au](mailto:Tam.VanAlphen@ministerial.qld.gov.au)>, Michelle Connolly <[Michelle.Connolly@ministerial.qld.gov.au](mailto:Michelle.Connolly@ministerial.qld.gov.au)>, Emma McBryde <[Emma.McBryde@ministerial.qld.gov.au](mailto:Emma.McBryde@ministerial.qld.gov.au)>  
**Subject:** FW: FNQ fatality

FYI

---

**From:** FOWLER John (NQ) [<mailto:john.fowler@ergon.com.au>]  
**Sent:** Friday, 12 August 2016 9:07 AM  
**To:** Amy Hunter <[Amy.Hunter@ministerial.qld.gov.au](mailto:Amy.Hunter@ministerial.qld.gov.au)>; Zoe Russell <[Zoe.Russell@ministerial.qld.gov.au](mailto:Zoe.Russell@ministerial.qld.gov.au)>  
**Cc:** DART Michael (WB) <[michael.dart@ergon.com.au](mailto:michael.dart@ergon.com.au)>; BIFFANTI Mark (NQ) <[mark.biffanti@ergon.com.au](mailto:mark.biffanti@ergon.com.au)>  
**Subject:** FNQ fatality

Just a heads up – there has been a fatality in FNQ this morning involving our network.

It seems the male driver has passed away after hitting one of our power poles on the Bruce Highway half way between Cardwell and Tully at 6.46am today. The accident brought down powerlines to within 2 meters of the ground causing an outage to 147 customers in the immediate area.

Tully crews responded and advised they believe the death is as a result of the accident and not electrocution.

Emergency services and police forensics are at the scene. Our crews are preparing to restore power but can't do so until police finish their work at the scene.

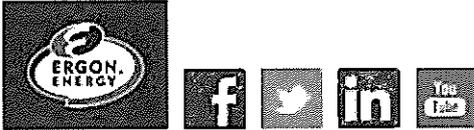
John Fowler  
Corporate Communications Manager  
External Stakeholder Engagement  
Ergon Energy Townsville

Ph: 07 4432 8730

Mob: N/R

Fax: 07 4432 8061

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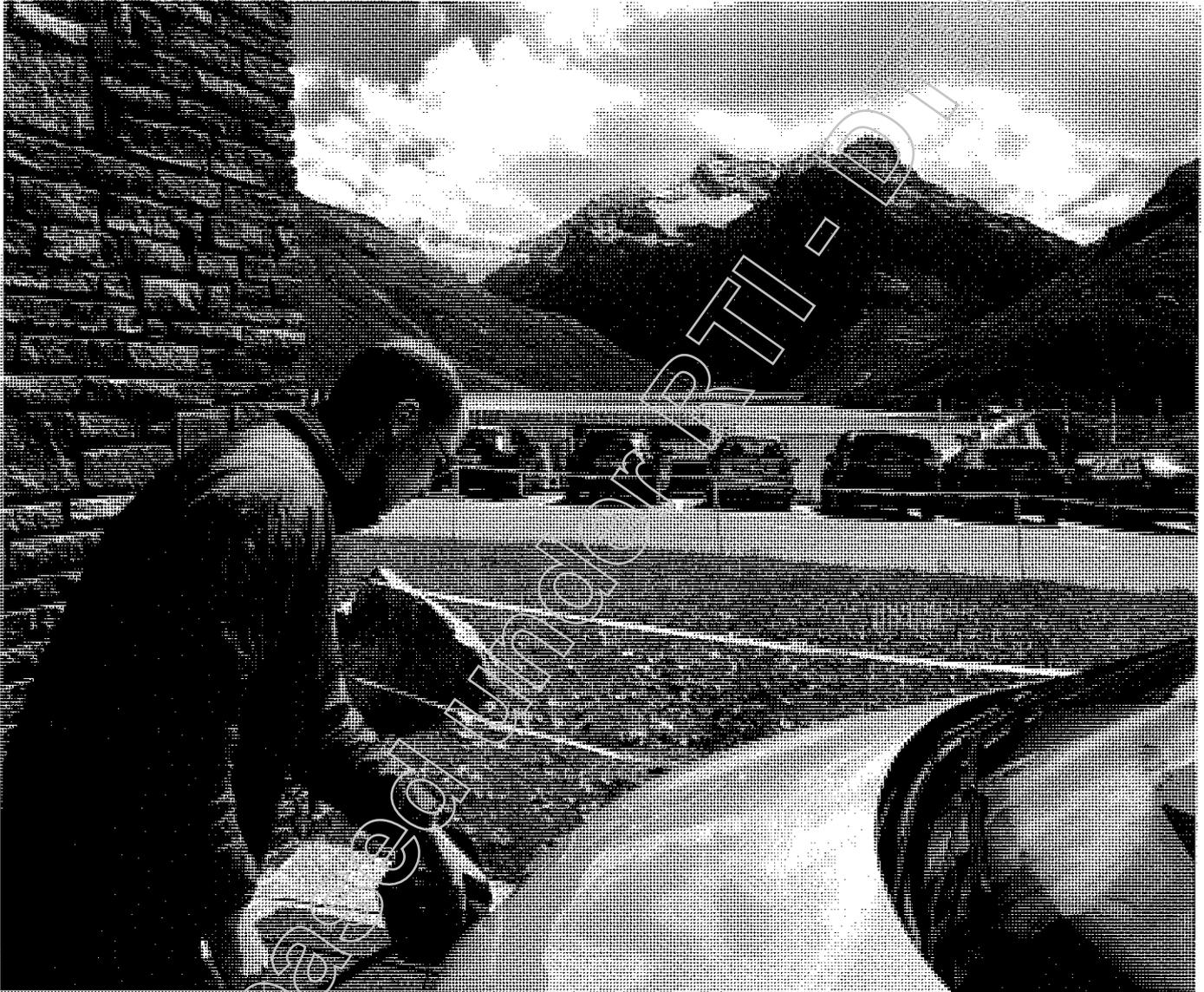
Subject: Bitcoin-inspired peer-to-peer solar trading trial kicks off in Perth : Renew Economy  
 From: Sch 4 CTPI  
 To: mangocube6@yahoo.co.uk;  
 Date: Friday, 12 August 2016, 17:20

Hey Mark.. hope all is well.. saw you did a Beyond Zero gig for the EV report. Nice..

Just to let you know, I'm in Austria and the state i'm in has 350 chargers for 500 EVs!!! I'm driving a Renault ZOE with a range of about 150 km. We drove to Innsbruck more than 250 km away no problem.. stopping at a mountain pass to charge there. Here's a pic. by the way, that's a HUGE pumped hydro scheme.

I'm back in Sept and would love to catch up. Scotty and Q and Geoff are coming to my place around the 5th.

stay wel... Sch 4 CTPI



http://www.reneweconomy.com.au/australia-renewable-energy/peer-to-peer-solar-trading-trial-kicks-off-in-perth-20160812

### Bitcoin-inspired peer-to-peer solar trading trial kicks off in Perth

A Perth start-up is set to begin trials of its blockchain-based software program that, if successful, could mean the beginning of peer-to-peer energy trading in Australia, in which consumers buy, sell or swap excess solar electricity directly with each other, rather than to the grid for a minimal return.



The company, Power Ledger, will begin the trials later this month, which will be conducted in conjunction with National Lifestyle Villages. The eight week trial will involve 10 households and about 20 people at NLV's Busselton Lifestyle Village, on the Western Power network.

Jemma Green – Power Ledger’s chair, who co-founded the company with Dave Martin and Jenny Conroy – says the aim of the pilot project is to enable producers and consumers to trade their energy directly, saving money, hassle and maximising the use of rooftop solar.

Blockchain is the software that underpins bitcoin, the virtual currency that has proved popular in many markets. Blockchain is now being seen as a revolutionary new step in many other markets, including in energy.

The technology works, like bitcoin, to identify the ownership of energy as it is generated and then to manage multiple trading agreements between consumers who buy excess solar direct from the original owner/producer, without the addition of market costs and commercial margins.

“It’s a software program that tracks the movement of electricity from point to point,” Green explained in an interview with One Step Off The Grid on Friday. “It handles the financial transactions off the back of it as well.

“Presently, if you’ve got surplus solar electricity you sell it back for a low feed-in tariff and buy it back (from the grid) for a high rate. Using (Power Ledger), you can sell it to your neighbour at somewhere between the two” – less than the uniform tariff but more than you would get from selling it to their retailer, Green said.

For example, rather than exporting excess solar to the grid for 6-7c/kWh and then buying electricity at a rate of 23c/kWh, you can sell it for 15c/kWh, which is around 10c/kWh after grid access costs are paid to the retailer.

“Effectively, we’re cutting out the middle-man to save consumers, and to maximise returns for producers,” she said.

“It’s a win for the people who have been able to afford to invest in roof-top solar, but also a win for customers who haven’t: they will be able to access clean, renewable energy at effectively a ‘wholesale’ rate. Everyone wins.

And in saying that, Green also means the incumbent power industry – as much as this disruptive technology might seem to be cutting their lunch.



Green says network operators in both WA and Victoria have been receptive to trialling the blockchain technology, and WA retailer Synergy is said to be “supportively involved” in discussions on a 2017 trial in the Perth metro area.

“There need to be new commercial models given the use of centralised energy is declining – and battery storage is likely to exacerbate that.”

Green says energy industry incumbents have a window of about two years – the time she and many others estimate it will take before battery storage becomes economic for the majority of Australian households – to sort out their future business models.

“If you see the grid as a trading platform instead of just poles and wires, then you can start to think about how can consumers be a positive part of that.

“There are quite significant opportunities in this paradigm.

“If you can enable people with solar to sell power to each other, they’ll be sending it across the grid (rather than storing it in batteries) which will maintain the use of the grid – and therefore the value of it,” Green said.

For retailers, she adds, it will be about building relationships with the consumers to facilitate the trading.

“For example, within a strata building you might have the strata own 49 per cent of the solar and battery system, while 51 per cent is owned by the retailer who also provides differential power.”

Green also believes the Power Ledger platform could boost solar uptake, prompting installations that might not have happened before.

“For example,” she told One Step, “you might have a local govt authority that has demand in one area and no roof space for solar.” In situations like this, she says, they could install a solar array in one spot and transfer the electricity generated to where it is needed.

“Consumers don’t like selling their power back to the retailer and buying it back at a higher price.

Using this platform, Green adds, “they can gift the electricity to their mother or anyone else; sell it when they want at the price they want.

“The benefits of distributed renewable energy will flow on to those who, at the moment, can least afford to participate; we think that’s pretty special.”

The Busselton trial will run for eight weeks, after which time Greens says Power Ledger will be announcing another trial in Perth’s south west. The company is also working on securing sites for a trial on the NEM in Victoria, and hopes to enter into commercial trials of the technology in 2017.

“We see this very much as a global product; a product of global significance. So it’s exciting to me that it’s happening (first) in Perth,” Green said, noting that WA was shaping up to be a leader in adoption of new energy technologies.

“They’re really aware of the declining utilisation of the grid and the economic importance of innovating.”

RenewEconomy Free Daily Newsletter

Attachments

about:blank

- IMG\_8962.jpg (2.28 MB)
- 05-19-rooftop-solar-in-australia.png (172.62 KB)
- 4549-e1470970430839.jpg (96.17 KB)

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Subject: ^\_Fwd^\_: ^\_Mediaportal^\_ ^\_Alert^\_ - ^\_Mark^\_ ^\_Bailey^\_

From: Mark.Bailey@ministerial.qld.gov.au

To: mangocube6@yahoo.co.uk

Date: Saturday, 13 August 2016 10:48:50 AM AEST

Sent from my iPhone

Begin forwarded message:

**From:** <mediaportal.au@isentia.com>  
**Date:** 13 August 2016 at 10:29:07 AM AEST  
**To:** <Mark.Bailey@ministerial.qld.gov.au>  
**Subject:** Mediaportal Alert - Mark Bailey

MEDIAPORTAL ALERT  
**Mark Bailey**



## **Internet (1 item)**



### **Desalination plant supplements drinking water**

13 Aug 2016 10:12AM • Brisbane Times

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**Subject:** Australian gas 40% cheaper in Japan than in Australia despite export costs

**From:** Murray Watt Sch 4 CTPI

**To:** mangocube6@yahoo.co.uk;

**Date:** Tuesday, 16 August 2016, 21:52

Just in case you missed this. I think this is going to become a big cost of living type issue.

[https://www.theguardian.com/business/2016/aug/16/australian-gas-40-cheaper-japan-than-australia-despite-export-costs?CMP=share\\_btn\\_link](https://www.theguardian.com/business/2016/aug/16/australian-gas-40-cheaper-japan-than-australia-despite-export-costs?CMP=share_btn_link)

Released under RTI - DTMR

Subject: VIDEO: An Introduction to Carbon Pricing | Climate Reality

From: Sch 4 CTPI

To:

Date: Thursday, 25 August 2016, 18:48

good film with some excellent graphics..

<http://www.climateRealityproject.org/blog/video-introduction-carbon-pricing-8>

## VIDEO: AN INTRODUCTION TO CARBON PRICING

*Carbon price: The price for avoided or released carbon dioxide (CO<sub>2</sub>) or CO<sub>2</sub>-equivalent emissions. This may refer to the rate of a carbon tax, or the price of emission permits. In many models that are used to assess the economic costs of mitigation, carbon prices are used as a proxy to represent the level of effort in mitigation policies. {IPCC Fifth Assessment Report}*

We all learn in science class that carbon is one of the building blocks of life. So what does it mean when climate activists call for a price on carbon? And why do we need one?

Let's start with the basics. Around the world, fossil fuels like oil, gas, and coal still power many of the world's industries and economies. When we burn fossil fuels, we release carbon into the atmosphere as carbon dioxide. While greenhouse gases like carbon dioxide play an important role in regulating the Earth's climate system, excessively high concentrations of atmospheric carbon – what we call “carbon pollution” – have dangerous consequences.

To put it another way, carbon pollution is the number one contributor to climate change. Scientists have linked carbon pollution with rising global temperatures, stronger and longer droughts, shifts in rain and snow patterns, more destructive and frequent storms, shrinking land and sea ice, increased ocean acidity, warmer oceans, and rising sea levels. And that's just for starters.

*Related: Striking NASA Selfies Show How the Earth Is Changing*

Many of these effects have already begun. This year is on track to become the hottest on record globally — and this is the third year in a row this has happened. And if we're keeping score, that would mean that 16 of the 17 hottest years on record globally have come since the beginning of the twenty-first century. In 2015, **wildfires burned more than 10 million acres of land in the United States** (another new record), with most projections pointing to even more US wildfires in the future. “Nuisance flooding” (flooding that overwhelms or damages public infrastructure) has increased on all three US coasts between 300 and 925 percent since the 1960s.

You don't have to look far to see how these and other consequences of climate change can get expensive. California's recent historic drought is estimated to have cost the state \$2.74 billion in 2015 and resulted in the loss of more than 21,000 jobs.

And guess who ends up paying these costs? We all do, through higher taxes, medical bills, and insurance rates.

*Related: Will Taxpayers Foot the Cleanup Bill for Bankrupt Coal Companies?*

And the companies responsible for the carbon pollution behind all this? They're sitting high on the list of the world's most profitable firms, while the rest of us are stuck paying the costs. Hardly seems fair, does it? Which is why it's time to put a price on carbon.

We know that the public costs of burning fossil fuels are enormous, but the market prices of carbon-intensive products and services don't reflect that reality. Government subsidies for the fossil fuel industry and lack of accountability for carbon pollution allow market prices for these products to stay artificially low, effectively telling polluters that they are free to use the atmosphere like an open sewer, emitting unlimited carbon pollution without any consequences.

Policies that put a price on carbon emissions aim to re-adjust the market to better reflect the true cost of carbon. Such policies, like carbon taxes or cap-and-trade programs, **have already been adopted in a number of countries around the globe.**

In the US, the US Court of Appeals for the Seventh Circuit recently **specifically backed a federal policy tool for counting the big-picture costs of climate change known as the Social Cost of Carbon (SCC).** This was the first time a US court has considered the legality of carbon accounting. By upholding the SCC, the court empowered the government to keep considering climate change in cost-benefit analyses when making federal regulations. **The SCC is not a true price on carbon, but it's a good first step.**

Which raises the question: why is a price on carbon one of the most cost-effective and market-friendly solutions to climate change? When a price on carbon forces companies to start paying the real economic and environmental costs of fossil fuels, they naturally look for cheaper options like solar and wind. More investment then goes into clean energy and a virtuous cycle begins, with lower costs attracting more business and investment, driving prices down even further. Which helps attract more business and investment. And on and on.

### Here's How You Can Help

So, what can you do about carbon pollution? Here are three ways you can support the US and other nations in marching forward on the path to a clean energy economy:

**1. Tell the US Environmental Protection Agency you support clean energy. Submit a comment showing your support for the EPA's Clean Energy Incentive Program (CEIP),** which helps states reduce carbon pollution by encouraging early investments in renewable energy.

# STAND UP TO BIG POLLUTERS! TELL THE EPA YOU SUPPORT THE CLEAN ENERGY INCENTIVE PROGRAM:

[climateresearchproject.org/CEIP](http://climateresearchproject.org/CEIP)



2. Share this article you just read and raise awareness about carbon pricing in your social network. Now that you understand why we need a price on carbon, share your knowledge and help build the public support to make it a reality.



Share on Facebook



Share on Twitter

3. Already done with #1 and #2? Take the next step and become a Climate Reality Leader. Learn directly from former US Vice President Al Gore about climate science and how to advocate for solutions. [Here's how.](#)

### Attachments

- ceipbanner.png (208.35 KB)
- sharing-button-FB\_off.jpg (1.70 KB)
- sharing-button-TW\_off.jpg (2.20 KB)

Released under RTI - DTMR

**Subject:** Re: URGENT Ben Lomond pollution

**From:** Bill Laing (bill@laingex.com)

**To:** david.sewell [redacted];

**Cc:** mangocube6@yahoo.co.uk; [redacted]; Michael.Rubenach@jcu.edu.au;

**Date:** Wednesday, 31 August 2016, 15:58

Excellent email Dave.

Bill

Managing Director & Principal Consultant  
BSc(Hons) PhD FSEG FAusIMM CP(Geo) FAIG MGSA MASEG

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bill@laingex.com  
61 7 4789 1401

[redacted]  
N/R

On 31 Aug 2016, at 2:20 pm, David Sewell <david.sewell [redacted]> wrote:

Hi Mark,

Here's the letter sent to you, Steven Miles and Andrew Lynam on 8/8/16. We have acknowledgement of the receipt of the emailed letter and we want to take further action, by making the situation known to the public, but would prefer a response from either or all of you before doing so.

Regards,

Dave Sewell

---

**Attachments**

- Letter to the Ministers 8:8:16 copy.docx (132.86 KB)
- Ben Lomond Receiving Water Monitoring Results -20160324 copy.xlsx (39.20 KB)
- Ben\_Lomond - Groundwater Data -20150212 copy.xlsx (25.84 KB)
- Laing Report-Ben Lomond Water Pollution-Final copy.pdf (10.30 MB)

- Mike Rubenach assesment.docx (75.12 KB)

Released under RTI - DTMR

8/08/2016

To:

The Honourable Dr Steven Miles MP Minister  
for Environment and Heritage Protection. and Minister for  
National Parks and the Great Barrier Reef

The Honourable Dr Andrew Lynam MP Minister for Natural  
Resources and Mines

The Honourable Mark Bailey MP Minister for Energy and  
Water Supply

Dear Ministers Miles, Lynam and Bailey

It is now over a year since the productive meeting  
between Citizens Against Mining Ben Lomond (CAMBL)  
and yourselves and staff at the 2015 Community Cabinet  
in Townsville. You reiterated your Government's policy of  
prohibiting uranium mining in Queensland, a policy which  
we applaud.

At that meeting we raised our principal concern - the  
capacity of the Ben Lomond site, already containing major  
surface and underground uranium mineralisation, to  
seriously pollute the local environment (mainly surface  
and subsurface water regimes), and the larger river  
watersheds of Keelbottom Creek and the downstream  
Burdekin River. We raised a series of questions around  
this issue, you accepted their validity, and you invited us  
to liaise with your Departments on, inter alia, the sampling  
regime in the leaseholder Uranium Mineral Ventures  
Incorporated's Environmental Authority EPML00418313  
and related ML's 1399 and 1419.

We have since acquired the water sampling analyses of  
receiving water and groundwater, as taken by the leaseholder  
under the conditions of their Environmental Authority (EA)  
between December 2010 and December 2015. Laing  
Exploration Pty Ltd has assessed the analyses, and identified the

implications for the water regimes in the Ben Lomond watershed. The Laing Exploration Report is attached.

Each water regime shows major exceeding of the conditions, throughout the five years 2010-2015, in chemical elements critical to human health: alpha radiation, beta radiation, uranium, lead, and arsenic.

<u>radiation</u>	<u>Uranium</u>	<u>Lead</u>	<u>Alpha radiation</u> <u>Arsenic</u>	<u>Beta</u>
<i>Number of samples over Limit</i>			47%	16%
5%	25%	85%		
<i>Highest concentration vs Limit</i>			274	59
3.4	98	39		

The elemental levels constitute major breaches of the EA - in other words, major pollution. The Laing Report demonstrates that the polluted water regimes cannot be ascribed to anything other than the underground mineralisation brought to surface as ore dumps and associated rock material. Whilever the Ben Lomond surface dumps remain as they are, they will perpetuate the current polluted water regimes.

The consistent temporal linear concentrations over the five year sampling period, with the anomalous analyses spread throughout the period, indicate that the pollution was present before, and after, the sampling period; and they create the reasonable assumption that the pollution began at the time of the original mining and ore dump formation circa 1981, and will most likely be continuing to the present and into the future.

The Ben Lomond pollution is thus a major addition to the environment, in all three possible spaces; (1) geochemical (2) temporal, and (3) spatial:

- (1) It comprises major levels of harmful elements which exceed the EA conditions by orders of magnitude,
- (2) It has continued (and still continues) over probably the three decades of existence of the underground mine and the surface

ore dumps, and

(3) It is present along a significant length of local, and probably regional, streams which lead into the Burdekin River, the largest river in Queensland.

Minister Miles (letter 1 below) advised that your Government is changing the Environmental Authority for the Ben Lomond site. The changes "primarily relate to environmental monitoring requirements and receiving water quality objectives, to ensure the site is managed in a manner that protects the environmental values of the area." We endorsed this approach in our meeting. While we applaud the recent chain of responsibility amendment to the Environment Act, recently passed in the Queensland Parliament by your government, we have since compared the two Ben Lomond EA's (2007 and 2015), and we are disappointed to see that little if anything has changed in the substantive conditions of the 2015 version of the EA. The geochemical conditions remain unchanged. It can be interpreted furthermore, that the 2015 conditions are broader than the earlier conditions: (2007 EA) "authorises exploration drilling .... does not authorise any mining, ore extraction or processing" whereas (2015 EA) "authorises exploration drilling .... does not authorise any mining, ore extraction or processing .... authorises large bulk sampling or constructing an exploratory shaft, adit or open pit". An open pit in particular would significantly increase the exposure of the orebody to the atmosphere and biosphere, from the current surface ore dumps.

The EA requires the leaseholder to conduct bi-monthly sampling of 'receiving waters affected by the release of process water or storm water contaminated by the mining activities, or both' and 'groundwater, affected by the mining activities' at specified locations, *and report to the DEHP if specified levels are exceeded* (our italics).

Three issues are raised by the current situation:

1. Given the major breach of the DEHP's prescribed standards in five elements harmful to human and animal health, what correction does DEHP plan:

- to the environment, damaged already;
- to the leaseholder, as penalties for major sustained pollution and as a deterrent to continued pollution?

2. Has the leaseholder reported the pollution to DEHP as prescribed in their EA? If they have, what has DEHP done in response, and if they have not, what measures do DEHP and DNRM plan to

- penalise the leaseholder,
- require them to cleanup and pay for the environmental pollution,
- force them into future compliance, or strip them of their non-compliant leases?

3. Have the Charters Towers, Burdekin and Townsville City Councils been notified of this major pollution in their riverine watersheds? If so, what advice has been given to them in regard to their water testing and consumption? We possess the results of water testing from Charters Towers which show inter alia, arsenic levels at 86% of the elemental limits in the Ben Lomond leaseholder's EA.

We look forward to your response. The Ben Lomond pollution being major, long-lived, and continuing, we expect a timely and detailed response to all components of our questions.

Yours sincerely

David Sewell  
Spokesperson for Citizens Against Mining Ben Lomond  
(CAMBL)

david.sewell

Sch 4 CTPI

Sch 4 CTPI

N/R

We attach also the written advice of Dr Michael Rubenach, retired Senior Lecturer, Department of Geology, James Cook University. Dr Rubenach has been involved technically with the Ben Lomond issue since the original Minatome mining and the Warden's Court hearing of 1981-82:

"I essentially agree with the Laing Exploration Report, but am uncertain whether all the contamination comes from surface tailings. A minor proportion could come from groundwater accessing underground workings, as air would probably penetrate these as well. However, I agree that there is no doubt that the contamination is derived from exposed ore.

Where do we go from here? Cattle, wildlife and people using creeks (especially Keelbottom Creek) could be affected. Keelbottom Creek should be regularly monitored. Similarly, the Burdekin River, for which Keelbottom Creek is a tributary, should be regularly monitored for radiation and relevant heavy metals in case contamination occurs subsequent to particular weather events.

Yours sincerely  
Dr Mike Rubenach  
6 August 2016"

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Ben Lomond Receiving Water Monitoring Results from 22 December 2010 to 18 December 2015

Environmental authority holder Uranium Mineral Ventures Incorporated  
 Environmental authority (EA) EPML00418313  
 EA Condition C1-1

Date	Site	pH	TDS	As	Cu	Mo	Zn	Pb	Hg	Mobile U	RA-226	Gross alpha	Gross beta
EA Conditions		6.5-8.5	500mg/L	0.007mg/L	1.0mg/L	0.05mg/L	3.0mg/L	0.01mg/L	0.001mg/L	0.02mg/L	0.5Bq/L	0.1Bq/L	0.5Bq/L
22/12/2010	SMW22	*	121	0.004	0.001	0.003	<0.005	0.001	<0.0001	<0.001	0.4	<0.06	<0.1
	SWM6	*	148	0.007	0.001	0.008	0.006	<0.001	<0.0001	0.003	<0.03	0.06	0.12
	SWM23	*	114	0.003	<0.001	0.001	0.006	0.002	<0.0001	<0.001	<0.03	<0.07	<0.1
	KB2	*	88	<0.001	0.002	<0.001	0.017	<0.001	<0.0001	<0.001	0.03	<0.07	0.11
	SWM24	*	204	0.014	0.002	<0.001	0.01	0.001	<0.0001	<0.001	<0.03	<0.08	<0.1
	SWM11	*	92	<0.001	0.001	<0.001	0.008	0.001	<0.0001	<0.001	<0.03	<0.06	<0.1
	KB13	*	97	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.03	<0.06	<0.1
	KB3	*	105	0.001	0.006	<0.001	0.021	0.001	<0.0001	<0.001	<0.04	<0.07	<0.1
	SWM4	*	200	0.004	0.002	<0.001	0.024	0.002	<0.0001	<0.001	<0.03	<0.08	0.12
29/01/2011	SWM4	7.58	292	0.004	<0.001	*	0.02	<0.001	<0.0001	0.001	<0.06	<0.05	<0.1
	SWM24	7.57	314	0.039	<0.001	*	<0.005	<0.001	<0.0001	<0.001	<0.06	<0.05	<0.1
	SWM6	7.79	144	0.002	0.004	*	0.021	<0.001	<0.0001	<0.001	<0.06	0.05	<0.1
	SWM22	7.82	107	0.009	<0.001	*	0.006	<0.001	<0.0001	0.005	<0.06	<0.05	<0.1
	SWM11	7.75	58	<0.001	<0.001	*	<0.005	<0.001	<0.0001	<0.001	<0.06	0.06	<0.1
	SWM23	7.21	100	0.003	0.001	*	0.013	0.002	<0.0001	<0.001	<0.06	<0.07	0.14
	KB2	7.28	69	<0.001	0.005	*	0.012	0.008	<0.0001	<0.001	<0.06	<0.05	<0.1
	KB13	7.37	69	<0.001	<0.001	*	<0.005	<0.001	<0.0001	<0.001	<0.06	<0.05	<0.1
	KB3	7.31	86	0.001	<0.001	*	<0.005	<0.001	<0.0001	<0.001	<0.06	<0.05	<0.1
11/03/2011	SWM24	7.75	175	0.02	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	*	<0.05	<0.1
	SWM22	7.37	71	0.013	0.006	0.003	0.099	0.012	<0.0001	0.006	*	0.79	0.37
	SWM11	6.79	55	<0.001	0.005	<0.001	0.022	0.012	<0.0001	0.002	*	<0.07	0.19
	SWM4	7.84	189	0.008	<0.001	0.01	0.008	<0.001	<0.0001	0.006	*	<0.05	<0.1
	SWM23	7.45	122	<0.001	<0.001	0.001	<0.005	<0.001	<0.0001	<0.001	*	<0.05	<0.1
	KB3	7.48	116	<0.001	0.005	<0.001	0.024	<0.001	<0.0001	<0.001	*	<0.05	<0.1
	KB13	7.46	74	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	*	<0.05	<0.1

	SWM6	*	*	*	*	*	*	*	*	*	*	*	*
	KB2	*	*	*	*	*	*	*	*	*	*	*	*
30/04/2011	SMW22	7.8	98	0.002	<0.001	<0.001	<0.005	<0.001	<0.0001	0.002	<0.03	<0.03	<0.1
	SWM6	8	304	0.004	<0.001	0.011	<0.005	<0.001	<0.0001	0.025	0.03	0.19	<0.1
	SWM23	7.23	98	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	7.67	89	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM24	*	*	*	*	*	*	*	*	*	*	*	*
	SWM11	7.67	94	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.72	101	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	*	<0.05	<0.1
	KB3	*	*	*	*	*	*	*	*	*	*	*	*
	SWM4	7.84	372	<0.001	0.002	0.004	0.008	0.001	<0.0001	0.003	0.04	<0.06	<0.1
26/05/2011	SMW22	7.88	504	0.003	0.001	0.007	0.007	<0.001	<0.0001	0.011	<0.03	0.21	<0.1
	SWM6	8.01	452	0.003	<0.001	0.016	<0.005	<0.001	<0.0001	0.049	0.05	0.73	<0.1
	SWM23	7.37	102	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	7.76	115	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM24	7.88	218	0.014	<0.001	<0.001	<0.005	<0.001	<0.0001	0.001	<0.04	<0.08	0.1
	SWM11	7.61	97	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.68	112	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB3	7.94	218	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	*	*	*
	SWM4	8.1	1090	0.004	0.001	<0.001	<0.005	0.001	<0.0001	0.007	<0.03	<0.16	<0.1
31/08/2011	SMW22	*	926	0.028	0.002	0.044	<0.005	<0.001	<0.0001	0.046	0.13	<0.28	0.11
	SWM6	*	447	0.004	<0.001	0.04	<0.005	<0.001	<0.0001	0.104	0.06	3.3	0.49
	SWM23	*	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	KB2	*	114	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.04	<0.07	<0.1
	SWM24	*	284	0.044	<0.001	0.001	<0.005	<0.001	<0.0001	0.002	0.08	<0.09	<0.1
	SWM11	*	120	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.06	<0.1
	KB13	*	109	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.06	<0.1
	KB3	*	351	<0.001	0.002	<0.001	0.019	0.002	<0.0001	0.002	0.05	<0.07	<0.1
	SWM4	*	1380	0.007	0.002	0.001	<0.005	0.002	<0.0001	0.025	<0.05	0.79	<0.1
30/09/2011	SMW22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	7.95	1380	0.01	<0.001	0.001	<0.005	<0.001	<0.0001	0.018	<0.03	0.39	<0.1

	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	KB2	7.95	155	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.03	<0.05	<0.1
	SWM24	7.86	282	0.011	<0.001	0.001	<0.005	<0.001	<0.0001	0.002	<0.03	<0.07	<0.1
	SWM11	7.86	156	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.24	147	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB3	7.89	419	<0.001	<0.001	0.001	<0.005	<0.001	<0.0001	0.001	<0.03	<0.07	<0.1
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
23/10/2011	SMW22	7.49	892	0.002	<0.001	0.021	<0.005	<0.001	<0.0001	0.019	0.06	0.31	<0.1
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	KB2	7.89	155	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.04	<0.05	<0.1
	SWM24	7.94	303	0.414	0.004	0.002	0.01	0.001	<0.0001	0.001	<0.03	<0.05	<0.1
	SWM11	7.67	164	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.15	152	<0.001	0.003	<0.001	0.008	<0.001	<0.0001	<0.001	<0.04	<0.05	<0.1
	KB3	7.57	499	0.002	0.003	0.001	0.01	<0.001	<0.0001	0.001	0.07	<0.32	0.14
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
12/11/2011	SMW22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	KB2	7.99	191	0.001	0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.03	<0.05	<0.1
	SWM24	7.95	309	0.086	<0.001	0.001	<0.005	0.001	<0.0001	0.001	<0.03	<0.05	<0.1
	SWM11	7.85	199	0.001	0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.45	176	0.001	0.009	<0.001	0.018	<0.001	<0.0001	<0.001	0.07	<0.05	<0.1
	KB3	8.11	498	0.002	0.002	0.001	0.007	<0.001	<0.0001	<0.001	0.05	<0.05	<0.1
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
6/01/2012	SMW22	7.96	859	0.005	<0.001	0.019	<0.005	<0.001	<0.0001	0.01	<0.07	0.2	<0.1
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM23	7.28	251	0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.04	<0.05	0.18
	KB2	7.5	85	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.06	0.82	<0.1
	SWM24	8.08	338	0.019	0.002	0.001	0.024	<0.001	<0.0001	0.001	<0.08	<0.05	0.14
	SWM11	7.39	105	<0.001	<0.001	<0.001	0.012	<0.001	<0.0001	<0.001	<0.06	<0.05	0.22
	KB13	7.54	100	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.06	<0.05	<0.1

	KB3	7.49	131	<0.001	0.006	<0.001	0.018	0.001	<0.0001	<0.001	<0.06	0.47	<0.1
	SWM4	8.23	986	0.011	0.002	0.002	0.006	<0.001	<0.0001	0.006	<0.06	<0.18	<0.1
16/02/2012	SMW22	7.81	266	0.002	<0.001	0.008	<0.005	<0.001	<0.0001	0.002	0.04	<0.05	<0.1
	SWM6	8	290	0.008	<0.001	0.017	<0.005	<0.001	<0.0001	0.01	0.04	<0.08	<0.1
	SWM23	7.03	88	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	7.26	108	<0.001	0.001	<0.001	0.006	<0.001	<0.0001	<0.001	0.07	<0.05	<0.1
	SWM24	7.02	154	0.001	<0.001	0.011	0.006	<0.001	<0.0001	0.008	0.1	0.26	0.1
	SWM11	7.23	60	<0.001	<0.001	<0.001	0.007	0.002	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.34	76	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB3	7.47	142	0.001	0.002	<0.001	0.007	0.003	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM4	7.96	382	0.002	<0.001	<0.001	0.009	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
20/04/2012	SWM22	7.39	406	0.002	0.001	0.005	<0.005	<0.001	<0.0001	0.003	0.04	<0.05	<0.1
	SWM6	7.68	418	0.004	<0.001	0.02	0.03	<0.001	<0.0001	0.022	0.05	0.25	0.12
	SWM23	7.15	90	<0.001	<0.001	<0.001	0.011	0.003	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM24	7.88	314	0.014	<0.001	0.001	<0.005	<0.001	<0.0001	<0.001	0.04	<0.05	<0.1
	SWM11	7.46	83	<0.001	<0.001	<0.001	0.024	0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.49	85	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	*	*	*	*	*	*	*	*	*	*	*	*
	KB3	*	*	*	*	*	*	*	*	*	*	*	*
	SWM4	7.81	932	0.004	<0.001	<0.001	<0.005	<0.001	<0.0001	0.007	0.03	0.1	<0.1
17/05/2012	SMW22	7.82	580	0.003	0.002	0.009	0.009	0.002	<0.0001	0.01	<0.03	0.18	<0.1
	SWM6	7.65	470	0.005	<0.001	0.035	<0.005	<0.001	<0.0001	0.045	0.03	1.31	0.19
	SWM23	7.36	101	0.002	0.002	<0.001	0.061	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	7.78	95	<0.001	<0.001	<0.001	0.019	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM24	7.84	316	0.041	0.005	0.001	0.012	<0.001	<0.0001	0.002	<0.03	<0.05	<0.1
	SWM11	7.62	99	<0.001	<0.001	<0.001	0.008	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.64	99	<0.001	0.005	<0.001	0.015	0.003	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB3	7.77	212	0.002	<0.001	<0.001	0.015	0.003	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM4	8.49	1250	0.002	0.002	0.001	0.006	<0.001	<0.0001	0.033	<0.03	0.56	0.2
30/06/2012	SMW22	8.15	626	0.005	<0.001	0.018	0.006	0.001	<0.0001	0.047	*	1.21	<0.1
	SWM6	8.08	610	0.001	<0.001	0.012	<0.005	<0.001	<0.0001	0.036	0.04	0.37	0.11

	SWM23	7.21	284	<0.001	<0.001	<0.001	<0.005	<0.001	0.0001	<0.001	0.06	<0.05	<0.1
	KB2	7.49	173	<0.001	<0.001	<0.001	0.008	0.001	<0.0001	<0.001	0.43	<0.05	<0.1
	SWM24	*	*	*	*	*	*	*	*	*	*	*	*
	SWM11	7.48	123	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.04	<0.05	<0.1
	KB13	7.47	181	<0.001	0.002	<0.001	0.009	<0.001	0.0001	<0.001	0.007	<0.05	<0.1
	KB3	7.84	227	<0.001	0.003	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM4	8.16	1110	0.002	0.001	<0.001	0.006	<0.001	<0.0001	0.022	<0.03	0.38	<0.1
26/07/2012	SMW22	7.85	265	<0.001	<0.001	0.005	<0.005	<0.001	<0.0001	0.005	<0.03	0.09	<0.10
	SWM6	8.03	328	0.005	<0.001	0.009	<0.005	<0.001	<0.0001	0.012	<0.03	0.32	<0.10
	SWM23	7.06	126	0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB2	7.38	74	<0.001	<0.001	<0.001	<0.005	0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM24	8.07	267	0.015	<0.001	<0.001	<0.005	<0.001	<0.0001	0.001	<0.03	<0.05	<0.10
	SWM11	7.01	75	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB13	7.31	67	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB3	7.65	133	<0.001	0.002	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM4	7.82	398	0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	0.001	<0.03	<0.05	<0.10
19/09/2012	KB 13	7.55	108	<0.001	0.001	<0.001	<0.005	0.002	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB 2	7.72	123	<0.001	<0.001	<0.001	<0.005	0.006	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM 22	7.74	899	0.005	<0.001	0.014	<0.005	<0.001	<0.0001	0.028	0.05	0.28	0.14
	SWM 23	7.19	187	0.002	<0.001	<0.001	0.076	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM 24	8.1	339	0.023	0.001	0.001	0.008	0.004	<0.0001	0.001	<0.03	<0.05	<0.10
	SWM 11	7.64	139	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM 4	8.04	1310	0.005	0.001	<0.001	0.005	0.005	<0.0001	0.018	<0.03	0.18	<0.10
	SWM 6	8.07	570	0.006	<0.001	0.034	<0.005	0.002	<0.0001	0.044	<0.03	0.72	0.23
	KB 3	7.91	288	<0.001	0.001	<0.001	<0.005	0.003	<0.0001	<0.001	<0.03	<0.05	<0.10
31/10/2012	KB13	*	103	<0.001	0.009	<0.001	0.182	0.005	<0.0001	<0.001	0.03	<0.05	<0.1
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	*	320	0.012	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.06	<0.06	<0.1
	SWM11	*	133	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.04	<0.05	<0.1

	KB2	*	130	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.12	<0.05	<0.1
	KB3	*	384	<0.001	0.002	<0.001	0.04	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
11/12/2012	KB13	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	7.98	314	0.063	<0.001	0.001	0.096	0.003	<0.0001	<0.001	0.1	<0.05	<0.1
	SWM11	7.98	174	<0.001	0.001	<0.001	0.023	0.002	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	8.08	146	<0.001	<0.001	<0.001	0.009	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB3	8.06	462	<0.001	<0.001	<0.001	0.054	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
15/01/2013	KB13	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	8.03	324	0.02	0.003	0.001	0.059	0.003	<0.0001	<0.001	<0.03	<0.07	<0.1
	SWM11	7.78	218	0.002	0.001	0.001	0.021	0.002	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	8.3	201	<0.001	<0.001	<0.001	0.02	0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB3	7.81	550	<0.001	<0.001	<0.001	0.008	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
22/02/2013	KB13	7.64	73	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.005	<0.04	<0.05	<0.10
	SWM22	8.19	252	0.002	<0.001	0.012	0.015	<0.001	<0.0001	0.002	<0.03	0.08	<0.1
	SWM23	7.41	100	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.08	<0.05	<0.1
	SWM6	8.29	252	0.006	<0.001	0.021	<0.005	<0.001	<0.0001	0.012	<0.03	0.12	<0.1
	SWM4	8.29	466	0.003	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.04	<0.05	<0.1
	SWM24	8.25	261	0.037	<0.001	0.002	0.014	<0.001	<0.0001	<0.001	0.03	<0.05	<0.1
	SWM11	7.65	73	<0.001	0.001	<0.001	0.039	0.003	<0.0001	<0.001	0.08	<0.05	<0.1
	KB2	7.62	69	<0.001	0.002	<0.001	0.021	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB3	7.8	103	<0.001	<0.001	<0.001	0.033	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
26/03/2013	KB2	7.31	49	<0.001	<0.001	<0.001	*	<0.001	<0.0001	<0.001	*	*	*
	SWM22	7.96	459	0.002	<0.001	0.012	*	0.001	<0.0001	0.009	*	*	*

	SWM11	7.32	51	<0.001	<0.001	<0.001	*	<0.0010	<0.0001	<0.001	*	*	*
27/03/2013	KB13	7.46	49	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM22	8	272	0.002	<0.001	0.013	<0.005	<0.001	<0.0001	0.01	<0.03	0.16	<0.10
	SWM23	7.23	94	0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.04	<0.05	<0.10
	SWM6	8.1	358	0.008	<0.001	0.03	<0.005	<0.001	<0.0001	0.037	0.05	0.68	<0.10
	SWM4	8.09	520	0.006	0.002	0.002	0.006	0.002	<0.0001	0.003	<0.03	0.08	<0.10
	SWM24	8.06	290	0.018	<0.001	0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM11	7.42	61	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB2	7.32	57	<0.001	0.001	<0.001	0.006	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB3	7.64	93	<0.001	0.002	<0.001	0.01	0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
30/04/2013	KB13	7.6	64	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM22	8.08	303	0.003	<0.001	0.01	<0.005	0.001	<0.0001	0.007	<0.03	<0.05	<0.10
	SWM23	7.46	83	0.001	<0.001	0.001	0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM6	8.15	372	0.007	0.001	0.023	0.008	<0.001	<0.0001	0.028	0.04	0.68	<0.10
	SWM4	8.18	727	0.006	<0.001	<0.001	<0.005	<0.001	<0.0001	0.006	<0.03	<0.05	<0.10
	SWM24	8.05	274	0.017	0.002	<0.001	0.008	<0.001	<0.0001	<0.001	<0.03	<0.06	<0.10
	SWM11	7.48	62	<0.001	0.017	<0.001	0.069	0.005	<0.0001	<0.001	<0.04	<0.05	<0.10
	KB2	7.88	43	<0.001	<0.001	<0.001	<0.005	0.002	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB3	7.72	104	<0.001	0.003	<0.001	0.009	0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
30/05/2013	KB13	*	62	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM22	*	469	0.007	<0.001	0.011	<0.005	<0.001	<0.0001	0.016	<0.03	0.17	0.14
	SWM23	*	122	0.002	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM6	*	433	0.007	<0.001	0.032	<0.005	0.002	<0.0001	0.058	<0.03	1.34	0.21
	SWM4	*	1360	0.008	<0.001	<0.001	<0.005	<0.001	<0.0001	0.019	<0.03	0.42	0.17
	SWM24	*	290	0.017	0.004	0.001	0.006	0.003	<0.0001	0.001	<0.03	<0.05	<0.10
	SWM11	*	72	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB2	*	*	*	*	*	*	*	*	*	*	*	*
	KB3	*	*	*	*	*	*	*	*	*	*	*	*
25/06/2013	KB13	*	64	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM22	*	597	0.012	<0.001	0.013	0.007	<0.001	<0.0001	0.021	<0.03	0.32	<0.10
	SWM23	*	108	0.006	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10

	SWM6	*	451	0.005	<0.001	0.034	<0.005	<0.001	<0.0001	0.078	<0.03	1.45	0.27
	SWM4	*	1290	0.008	<0.001	<0.001	<0.005	0.002	<0.0001	0.024	<0.03	0.43	<0.10
	SWM24	*	286	0.028	<0.001	0.001	<0.005	<0.001	<0.0001	0.002	0.03	<0.05	<0.10
	SWM11	*	78	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.03	<0.05	<0.10
	KB2	*	61	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB3	*	115	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
23/07/2013	KB13	*	79	<0.001	<0.001	<0.001	<0.005	0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM22	*	1020	0.048	0.002	0.037	0.006	0.002	<0.0001	0.04	0.04	0.79	<0.10
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	*	440	0.008	<0.001	0.044	<0.005	<0.001	<0.0001	0.086	0.03	1.43	0.33
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	*	304	0.02	<0.001	0.001	<0.005	<0.001	<0.0001	0.001	<0.03	<0.05	<0.10
	SWM11	*	77	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB2	*	99	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB3	*	161	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
14/08/2013	KB13	*	160	<0.001	0.007	<0.001	0.016	0.003	<0.0001	<0.001	*	*	*
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	*	527	0.01	<0.001	0.049	<0.005	0.002	<0.0001	0.107	*	*	*
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	*	373	0.016	0.004	0.001	0.015	<0.001	<0.0001	<0.001	*	*	*
	SWM11	*	123	<0.001	<0.001	<0.001	<0.005	0.001	<0.0001	<0.001	*	*	*
	KB2	*	153	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	*	*	*
	KB3	*	183	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	*	*	*
28/02/2014	KB3	*	98	<0.001	<0.001	<0.001	0.01	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB13	*	64	<0.001	0.001	<0.001	<0.005	0.001	<0.0001	<0.001	0.12	<0.05	<0.1
	SWM22	*	127	0.002	0.003	0.003	0.014	0.003	<0.0001	<0.001	<0.05	<0.06	<0.13
	SWM6	*	180	0.005	<0.001	0.008	<0.005	<0.001	<0.0001	0.003	0.08	<0.1	<0.2
	SWM4	*	151	0.002	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.07	<0.14
	SWM24	*	284	0.024	0.012	<0.001	<0.005	0.001	<0.0001	<0.001	<0.05	<0.16	<0.31
	SWM11	*	75	0.001	<0.001	<0.001	<0.001	<0.005	<0.0001	<0.0001	<0.05	<0.05	<0.1
	KB2	*	60	<0.001	0.001	<0.001	<0.005	0.001	<0.0001	<0.001	<0.05	<0.05	<0.1

	SWM23	*	67	0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
22/04/2014	KB3	*	80	0.001	0.002	<0.001	0.006	0.004	<0.0001	<0.001	*	*	*
	KB13	*	45	<0.001	0.001	<0.001	0.006	<0.001	<0.0001	<0.001	*	*	*
	SWM22	*	132	0.002	0.001	0.003	<0.005	<0.001	<0.0001	<0.001	*	*	*
	SWM6	*	233	0.008	0.007	0.006	0.02	0.004	<0.0001	0.008	*	*	*
	SWM4	*	262	0.002	0.003	<0.001	0.012	0.001	<0.0001	<0.001	*	*	*
	SWM24	*	294	0.021	<0.001	0.001	<0.005	<0.001	<0.0001	<0.001	*	*	*
	SWM11	*	69	0.002	0.001	<0.001	<0.005	0.002	<0.0001	<0.001	*	*	*
	KB2	*	40	<0.001	0.002	<0.001	<0.005	0.002	<0.0001	<0.001	*	*	*
	SWM23	*	59	0.002	0.002	<0.001	0.007	0.002	<0.0001	<0.001	*	*	*
18/06/2014	KB3	*	121	<0.001	0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.10
	KB13	*	61	<0.001	0.002	<0.001	0.02	0.002	<0.0001	<0.001	<0.05	<0.05	<0.10
	SWM22	*	224	0.001	<0.001	0.004	<0.005	<0.001	<0.0001	0.003	<0.05	0.09	<0.10
	SWM6	*	395	0.004	0.001	0.014	<0.005	0.003	<0.0001	0.035	<0.05	0.9	0.33
	SWM4	*	382	0.002	0.002	<0.001	0.014	0.003	<0.0001	<0.001	<0.05	<0.05	<0.10
	SWM24	*	303	0.015	<0.001	0.001	0.01	0.001	<0.0001	0.001	<0.05	<0.05	<0.10
	SWM11	*	65	<0.001	0.002	<0.001	0.022	0.006	<0.0001	<0.001	<0.05	<0.05	<0.10
	KB2	*	53	<0.001	<0.001	<0.001	<0.005	0.003	<0.0001	<0.001	<0.05	<0.05	<0.10
	SWM23	*	97	0.001	0.008	<0.001	0.019	0.002	<0.0001	<0.001	<0.05	<0.05	<0.10
3/09/2014	KB3	*	102	<0.001	<0.001	<0.001	<0.005	0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB13	*	85	<0.001	<0.001	<0.001	0.148	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	*	1500	0.01	0.002	<0.001	0.015	0.004	<0.0001	0.019	<0.05	0.2	0.24
	SWM24	*	295	0.033	0.007	<0.001	0.022	0.005	<0.0001	0.001	<0.05	<0.05	<0.1
	SWM11	*	66	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB2	*	71	<0.001	<0.001	<0.001	<0.005	0.003	<0.0001	<0.001	<0.05	<0.05	<0.1
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
17/10/2014	KB3	*	166	0.002	0.002	<0.001	0.022	0.006	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB13	*	86	<0.001	<0.001	<0.001	<0.005	0.006	<0.0001	<0.001	<0.05	<0.05	<0.1
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry

	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	*	281	0.023	0.005	<0.001	0.008	0.004	<0.0001	<0.001	0.06±0.011	<0.09	<0.18
	SWM11	*	91	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB2	*	108	<0.001	<0.001	<0.001	0.009	0.002	<0.0001	<0.001	<0.05	<0.05	<0.1
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
12/12/2014	KB3	*	286	0.002	0.008	<0.001	0.012	0.006	<0.0001	<0.001	0.06	0.06	<0.1
	KB13	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	*	433	4.39	0.036	0.003	0.28	0.054	<0.0001	0.008	0.47	0.47	0.84
	SWM11	*	110	0.004	0.003	<0.001	<0.005	0.003	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB2	*	104	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
27/02/2015	KB3	*	132	0.002	0.002	<0.001	0.012	0.004	<0.001	<0.001	<0.05	<0.05	<0.1
	KB13	*	77	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.05	<0.05	<0.1
	SWM22	*	194	0.004	<0.001	0.009	<0.005	0.006	<0.001	0.001	<0.05	<0.05	<0.1
	SWM6	*	243	0.033	0.002	0.022	0.012	0.022	<0.001	0.019	0.18	0.49	0.16
	SWM4	*	262	0.005	0.001	<0.001	0.012	0.005	<0.001	<0.001	0.1	<0.05	<0.1
	SWM24	*	366	0.016	<0.001	0.002	<0.005	0.003	<0.001	0.003	<0.05	0.1	<0.1
	SWM11	*	75	<0.001	0.002	<0.001	0.022	0.013	<0.001	<0.001	0.07	<0.05	<0.1
	KB2	*	74	<0.001	<0.001	<0.001	0.009	0.002	<0.001	<0.001	0.05	<0.05	<0.1
	SWM23	*	89	0.002	0.005	<0.001	<0.005	<0.001	<0.001	<0.001	<0.05	<0.05	<0.1
29/05/2015	KB3	*	303	0.001	0.002	<0.001	0.009	0.007	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB13	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	*	398	0.007	<0.001	0.001	<0.005	<0.001	<0.0001	0.005	<0.05	0.14 ±0.026	<0.1
	SWM11	*	115	0.001	0.002	<0.001	<0.005	0.008	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB2	*	104	<0.001	<0.001	<0.001	<0.005	0.004	<0.0001	<0.001	<0.05	<0.05	<0.1

	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
12/08/2015	KB3	*	394	0.011	0.002	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	*	363	0.011	0.002	0.001	0.008	<0.001	<0.0001	0.003	<0.03	<0.05	<0.1
	SWM11	*	156	0.002	0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	*	142	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
15/10/2015	KB3	7.19	442	0.001	0.002	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB13	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM11	8.02	223	0.002	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB2	8.47	193	0.001	<0.001	<0.001	<0.0050	0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
18/12/2015	KB3	*	*	0.002	0.002	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB2	*	*	0.003	0.002	<0.001	<0.005	0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	SWM11	*	*	0.009	0.002	0.002	<0.005	0.002	<0.0001	<0.001	<0.005	<0.05	<0.1

Date	Site	pH	TDS 500mg/L	As 0.007mg/L	Cu 1.0mg/L	Mo 0.05mg/L
22/12/2010	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2		604	0.015	0.013	0.001
	GWM16		250	0.01	0.004	0.001
	GWM6		722	0.009	0.002	<0.001
29/01/2011	BL SP DS1	dry	dry	dry	dry	dry
	BL SP US	8.09	376	0.032	0.006	
	BL SP DS2	7.46	504	0.036	0.004	
	GWM6	7.27	740	0.038	0.02	
	GWM16	7.49	135	0.009	0.002	
11/03/2011	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2	8.13	575	0.02	0.001	<0.001
	BL SP US	7.98	3020	0.002	0.006	<0.001
	GWM6	8.19	759	0.014	0.003	<0.001
	GWM16	7.43	136	0.01	<0.001	<0.001
30/04/2011	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2	7.44	832	0.013	0.011	<0.001
	BL SP US	7.33	3920	0.006	0.002	<0.001
	GWM6	7.12	190	0.017	0.002	0.001
	GWM16	7.85	760	0.01	0.002	<0.001
26/05/2011	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2	7.19	1030	0.036	0.005	<0.001
	BL SP US	7.12	4160	0.006	0.002	<0.001
	GWM6	7.83	702	0.01	<0.001	<0.001
	GWM16	7.15	201	0.027	0.001	0.002
31/08/2011	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2		4300	0.01	0.002	<0.001
	BL SP US		1160	0.056	0.02	<0.001
	GWM6		751	0.01	0.003	<0.001
	GWM16		438	0.034	0.004	0.004
30/09/2011	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2	7.21	1110	0.004	0.001	<0.001
	BL SP US	7.04	4440	0.028	<0.001	0.001
	GWM6	7.54	729	0.012	0.001	<0.001
	GWM16	7.37	522	0.031	0.002	0.004
23/10/2011	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2	7	1200	0.053	0.012	<0.001
	BL SP US	7.13	4660	0.009	0.008	<0.001
	GWM6	7.67	757	0.014	0.002	<0.001
	GWM16	7.26	559	0.025	0.003	0.003

12/11/2011	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2	7.37	1290	0.062	0.006	<0.001
	BL SP US	7.27	4430	0.01	0.002	<0.001
	GWM6	7.75	815	0.018	0.002	<0.001
	GWM16	7.44	706	0.025	0.003	0.003
6/01/2012	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2	7.65	1410	0.056	0.006	0.001
	BL SP US	7.43	5080	0.007	0.002	<0.001
	GWM6	8.04	798	0.015	0.002	<0.001
	GWM16	7.36	529	0.022	0.004	0.002
16/02/2012	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2	7.65	290	0.018	0.002	0.001
	BL SP US	7.37	776	0.006	0.026	<0.001
	GWM6	8.09	798	0.014	0.002	<0.001
	GWM16	7.08	240	0.011	0.002	<0.001
20/04/2012	BL SP DS1	7.31	1230	0.006	0.009	<0.001
	BL SP DS2	7.34	550	0.004	<0.001	<0.001
	BL SP US	7.28	1260	0.003	<0.001	<0.001
	GWM6	7.92	830	0.008	<0.001	<0.001
	GWM16	7.22	214	0.015	<0.001	0.001
17/05/2012	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2	7.18	692	0.023	0.012	<0.001
	BL SP US	7.15	1520	0.007	<0.001	<0.001
	GWM6	7.94	814	0.012	0.003	0.002
	GWM16	7.18	352	0.028	0.004	0.003
30/06/2012	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2	7.59	910	0.027	0.008	<0.001
	BL SP US	7.54	1670	0.007	<0.001	<0.001
	GWM6	8.3	830	0.007	0.003	0.001
	GWM16	7.69	620	0.025	0.004	0.003
26/07/2012	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2	7.34	421	0.018	<0.001	<0.001
	BL SP US	7.15	1720	0.009	0.001	<0.001
	GWM6	7.77	761	0.008	0.001	<0.001
	GWM16	6.94	465	0.014	0.001	0.002
19/09/2012	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2	7.33	1040	0.017	0.003	<0.001
	BL SP US	7.18	2220	0.004	0.004	<0.001
	GWM 6	7.63	783	0.008	<0.001	<0.001
	GWM 16	7.02	561	0.017	0.006	0.002

31/10/2012	BL SP DS1			dry	dry	dry	dry
	BL SP DS2		1100		0.067	0.001	0.002
	BL SP US		1880		0.008	0.041	<0.001
	GWM6		1220		0.016	0.018	<0.001
	GWM16		680		0.018	0.004	0.002
11/12/2012	BL SP DS1	dry	dry	dry	dry	dry	
	BL SP DS2	7.59	1150		0.069	0.011	<0.001
	BL SP US	-	-		0.032	0.054	<0.001
	GWM6	7.46	638		0.022	0.01	0.002
	GWM16	7.93	774		0.008	<0.001	<0.001
15/01/2013	BL SP DS1	dry	dry	dry	dry	dry	
	BL SP DS2	7.44	1240		0.046	0.004	0.001
	BL SP US	7.3	2000		0.011	0.019	<0.001
	GWM6	7.97	774		0.007	0.002	<0.001
	GWM16	7.34	1580		0.022	0.011	0.002
22/02/2013	BL SP DS1	dry	dry	dry	dry	dry	
	BL SP DS2	7.84	507		0.057	0.003	<0.001
	BL SP US	7.04	568		0.014	0.055	0.002
	GWM6	8.22	800		0.108	0.016	0.002
	GWM16	6.7	3310		0.068	0.072	0.003
27/03/2013	BL SP DS1	dry	dry	dry	dry	dry	
	BL SP DS2	7.55	704		0.063	0.003	0.001
	BL SP US	7.46	2700		0.017	0.071	<0.001
	GWM6	7.91	706		0.055	0.001	<0.001
	GWM16	7.15	3820		0.099	0.117	0.003
30/04/2013	BL SP DS1	dry	dry	dry	dry	dry	
	BL SP DS2	7.53	995		0.015	0.002	<0.001
	BL SP US	NT	NT		0.003	0.002	<0.001
	GWM6	7.98	731		0.021	0.003	<0.001
	GWM16	7.25	709		0.01	0.004	<0.001
30/05/2013	BL SP DS1	dry	dry	dry	dry	dry	
	BL SP DS2		981		0.092	0.011	0.001
	BL SP US		1640		0.053	0.136	0.001
	GWM6		715		0.015	0.002	<0.001
	GWM16		5050		0.053	0.063	0.003
25/06/2013	BL SP DS1	dry	dry	dry	dry	dry	
	BL SP DS2		1090		0.085	0.002	0.003
	BL SP US				0.043	0.106	<0.001
	GWM6		753		0.066	0.001	0.002
	GWM16		12900		0.271	0.356	0.011

23/07/2013	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2		1130	0.104	0.003	0.002
	BL SP US	dry	dry	dry	dry	dry
	GWM6		766	0.033	0.001	0.001
	GWM16	dry	dry	dry	dry	dry
14/08/2013	BL SP DS1	dry	dry	dry	dry	dry
	BL SP DS2		1080	0.107	0.014	0.002
	BL SP US	dry	dry	dry	dry	dry
	GWM6		770	0.022	0.003	<0.001
	GWM16	dry	dry	dry	dry	dry
28/02/2014	BL SP DS1	Dry				
	BL SP DS 2		633	0.082	0.012	0.001
	BL SP US		1220	0.007	0.02	<0.001
	GWM16		212	0.008	0.003	<0.001
	GWM6		736	0.014	0.005	<0.001
22/04/2014	BL SP DS1	Dry				
	BL SP DS 2		931	0.051	0.009	<0.001
	BL SP US		1880	0.007	0.018	<0.001
	GWM16		120	0.011	0.003	<0.001
	GWM6		788	0.009	0.002	<0.001
10/07/2014	BL SP DS1	Dry				
	BL SP US		2940	0.026	0.29	<0.001
	GWM16		448	0.019	0.005	0.002
	GWM6		699	0.01	0.004	<0.001
23/09/2014	BL SP DS1	Dry				
	BL SP US	Dry				
	GWM16		1470	0.033	0.029	0.008
	GWM6		718	0.012	0.004	<0.001
17/10/2014	BL SP DS1	Dry				
	BL SP DS 2		1590	0.142	0.007	0.002
	BL SP US	Dry				
	GWM16		1960	0.039	0.055	0.005
	GWM6		736	0.012	0.009	<0.001
12/10/2014	BL SP DS1	Dry				
	BL SP DS 2		1490	0.163	0.005	0.002
	BL SP US	Dry				
	GWM16	Dry				
27/02/2015	GWM6		720	0.012	0.005	<0.001
	BL SP DS1	Dry				

	BL SP DS 2		1800	0.134	0.008	0.002
	BL SP US	Dry				
	GWM16		3270	0.044	0.071	0.003
	GWM6		749	0.007	0.004	<0.001
29/06/2015	BL SP DS1	Dry				
	BL SP US	Dry				
	GWM16	Dry				
	GWM6		716	0.056	0.007	0.002
12/08/2015	BL SP DS1	Dry				
	BL SP US	Dry				
	GWM16	Dry				
	GWM6		736	0.007	0.002	<0.001
15/10/2015	BL SP DS1	Dry				
	BL SP DS 2	6.84	1270	0.105	0.003	0.001
	BL SP US	Dry				
	GWM16	Dry				
	GWM6	6.64	787	0.113	0.039	0.004
18/12/2015	BL SP DS1					
	BL SP DS 2		2760	0.272	0.044	0.003
	BL SP US					
	GWM16					
	GWM6		224	0.125	0.006	0.004

Released under RTI - DTMR

Zn 3.0mg/L	Pb 0.01mg/L	Hg 0.001mg/L	Mobile U 0.02mg/L	RA-226 0.5Bq/L	Gross alpha 0.1Bq/L	Gross beta 0.5Bq/L
dry	dry	dry	dry	dry	dry	dry
0.033	0.016	<0.0001	0.004	<0.03	<0.17	0.55
0.024	0.006	<0.0001	0.001	0.14	0.11	0.27
0.021	0.002	<0.0001	<0.001	0.05	<0.1	<0.1
dry	dry	dry	dry	dry	dry	dry
0.027	0.013	<0.0001	0.003	<0.06	0.66	0.59
0.018	0.008	<0.0001	0.002	<0.06	0.19	0.3
0.319	0.094	<0.0001	0.002	<0.06	<0.13	<0.1
0.016	0.003	<0.0001	<0.001	<0.06	0.2	0.13
dry	dry	dry	dry	dry	dry	dry
0.007	<0.001	<0.0001	0.001	<0.1	<0.1	0.19
0.017	0.004	<0.0001	0.017	<0.11	0.76	0.53
0.02	0.004	<0.0001	<0.001	<0.11	<0.11	0.1
0.015	0.002	<0.0001	<0.001	<0.11	0.08	0.13
dry	dry	dry	dry	dry	dry	dry
0.076	0.022	<0.0001	0.005	<0.03	0.62	0.41
0.019	0.003	<0.0001	0.012	0.06	<0.62	<0.1
0.127	0.009	<0.0001	<0.001	<0.03	<0.11	0.11
0.014	0.01	<0.0001	<0.001	0.03	<0.12	0.1
dry	dry	dry	dry	dry	dry	dry
0.034	0.005	<0.0001	0.003	<0.03	1.09	1.7
0.01	0.002	<0.0001	0.008	0.06	<0.55	<0.1
0.01	0.002	<0.0001	<0.001	<0.03	<0.09	0.11
0.016	0.001	<0.0001	<0.001	<0.03	<0.08	<0.1
dry	dry	dry	dry	dry	dry	dry
0.006	0.002	<0.0001	0.003	0.07	<0.84	<0.1
0.089	0.038	<0.0001	0.005	0.07	<0.25	0.2
0.008	0.009	<0.0001	<0.001	0.05	<0.13	<0.1
0.038	0.004	<0.0001	<0.001	<0.03	<0.28	0.17
dry	dry	dry	dry	dry	dry	dry
0.006	<0.001	<0.0001	0.003	0.03	<0.41	<0.1
<0.005	<0.001	<0.0001	0.001	0.07	<1.32	<0.1
0.015	<0.001	<0.0001	<0.001	<0.04	<0.13	0.15
0.032	0.003	<0.0001	<0.001	<0.03	0.37	0.56
dry	dry	dry	dry	dry	dry	dry
0.055	0.022	<0.0001	0.004	0.03	<0.38	0.87
0.016	0.01	<0.0001	0.004	<0.04	<0.6	<0.1
0.016	0.003	<0.0001	<0.001	<0.04	<0.11	<0.1
0.027	0.004	<0.0001	<0.001	<0.04	0.84	0.32

dry	dry	dry	dry	dry	dry	dry
0.026	0.009	<0.0001	0.004	0.04	<0.3	0.25
0.006	0.001	<0.0001	0.003	0.08	1.74	1.07
0.016	0.001	<0.0001	<0.001	0.04	<0.05	<0.01
0.047	0.004	<0.0001	<0.001	<0.04	0.26	0.46
dry	dry	dry	dry	dry	dry	dry
0.094	0.002	<0.0001	0.001	0.13	<0.19	0.22
<0.005	0.002	<0.0001	0.01	0.09	0.91	0.46
0.008	0.004	<0.0001	<0.001	0.1	<0.05	0.15
0.022	0.007	<0.0001	0.002	<0.06	0.13	0.12
dry	dry	dry	dry	dry	dry	dry
0.012	0.004	<0.0001	<0.001	<0.03	1.17	0.4
0.077	0.05	<0.0001	0.002	<0.03	0.13	0.84
0.02	0.004	<0.0001	<0.001	<0.03	<0.09	<0.1
0.016	0.004	<0.0001	<0.001	0.06	<0.05	0.11
0.03	0.016	<0.0001	0.003	ugh water for sample		
<0.005	<0.001	<0.0001	0.002	<0.03	<0.05	<0.1
0.014	0.002	<0.0001	0.001	0.05	0.08	0.3
0.024	0.008	<0.0001	<0.001	0.03	<0.05	<0.1
0.01	0.003	<0.0001	<0.001	0.04	<0.05	<0.1
dry	dry	dry	dry	dry	dry	dry
0.053	0.025	<0.0001	0.003	0.03	<0.05	0.27
0.006	0.001	<0.0001	0.001	<0.03	<0.18	0.1
0.026	0.016	<0.0001	<0.001	0.03	<0.05	<0.1
0.031	0.009	<0.0001	<0.001	<0.03	0.16	0.19
dry	dry	dry	dry	dry	dry	dry
0.028	0.015	<0.0001	0.002	0.05	0.07	0.24
0.008	<0.001	<0.0001	<0.001	0.05	<0.08	<0.1
0.024	0.006	<0.0001	<0.001	<0.03	<0.05	<0.1
0.038	0.005	<0.0001	<0.001	0.04	<0.13	0.15
dry	dry	dry	dry	dry	dry	dry
<0.005	<0.001	<0.0001	0.001			
0.009	0.001	<0.0001	0.001			
0.016	0.005	<0.0001	<0.001			
0.023	0.008	<0.0001	0.001			
dry	dry	dry	dry	dry	dry	dry
0.009	0.007	<0.0001	<0.001	<0.04	<0.10	0.3
0.012	0.007	<0.0001	<0.001	0.05	<0.19	0.31
0.009	0.004	<0.0001	<0.001	<0.03	<0.05	<0.10
0.021	0.006	<0.0001	0.002	<0.04	<0.06	0.11

dry	dry	dry	dry	dry	dry	dry
0.014	<0.001	<0.0001	<0.001	0.05	<0.18	<0.1
0.153	0.08	<0.0001	0.012	0.08	0.85	0.8
0.074	0.035	<0.0001	0.005	0.04	<0.08	0.2
0.014	0.004	<0.0001	0.002	<0.03	0.17	0.12

dry	dry	dry	dry	dry	dry	dry
0.049	0.028	<0.0001	0.006	0.06	<0.42	<0.1
0.276	0.679	<0.0001	0.038	* insufficient water to sample		
0.839	0.033	<0.0001	0.004	0.32	<0.13	0.43
0.008	<0.001	<0.0001	<0.001	0.07	<0.05	<0.1

dry	dry	dry	dry	dry	dry	dry
0.028	0.003	<0.0001	<0.001	<0.03	<1.43	<0.1
0.157	0.134	<0.0001	0.019	* insufficient water to sample		
0.037	0.005	<0.0001	<0.001	0.03	<0.05	<0.1
0.629	0.039	<0.0001	0.004	0.13	0.27	0.58

dry	dry	dry	dry	dry	dry	dry
0.017	0.006	<0.0001	<0.001	0.32	<0.11	0.15
0.329	0.103	0.0001	0.011	0.18	0.36	0.75
0.059	0.004	<0.0001	<0.001	0.09	<0.05	<0.1
2.69	0.239	<0.0001	0.018	0.78	0.45	1.03

dry	dry	dry	dry	dry	dry	dry
0.018	0.006	<0.0001	0.001	<0.03	0.49	0.44
1.73	0.161	<0.0001	0.015	0.23	1.3	1.48
0.027	0.007	<0.0001	<0.001	0.03	<0.05	<0.10
4.1	0.353	<0.0001	0.026	0.27	1.02	1.12

dry	dry	dry	dry	dry	dry	dry
0.014	0.001	<0.0001	<0.001	<0.03	<0.90	<0.10
<0.005	0.006	<0.0001	0.009			
0.036	0.005	<0.0001	<0.001	<0.03	<0.05	<0.10
0.027	0.006	<0.0001	<0.001	<0.03	0.2	0.25

dry	dry	dry	dry	dry	dry	dry
0.063	0.02	<0.0001	0.003	0.04	<0.25	0.24
0.614	0.279	<0.0001	0.055			
0.018	0.01	<0.0001	<0.001	<0.03	<0.05	0.1
2.41	0.199	<0.0001	0.009			

dry	dry	dry	dry	dry	dry	dry
0.023	0.009	<0.0001	0.016	0.06	0.84	0.24
0.452	0.232	<0.0001	0.045			
0.015	0.003	<0.0001	<0.001	<0.03	<0.05	<0.10
11.3	0.981	<0.0005	0.067			

dry	dry	dry	dry	dry	dry	dry
0.019	0.002	<0.0001	0.007	0.03	2.43	0.12
dry	dry	dry	dry	dry	dry	dry
0.011	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
dry	dry	dry	dry	dry	dry	dry
dry	dry	dry	dry	dry	dry	dry
0.258	0.072	<0.0001	0.004	dry	dry	dry
dry	dry	dry	dry	dry	dry	dry
0.013	0.002	<0.0001	<0.001	dry	dry	dry
dry	dry	dry	dry	dry	dry	dry
0.059	0.013	<0.0001	0.002	0.06	<0.42	<0.83
0.087	0.026	<0.0001	0.003	0.1	<0.25	<0.5
0.014	0.005	<0.0001	<0.001	<0.05	<0.05	0.17
0.037	0.009	<0.0001	<0.001	<0.05	<0.07	<0.14
0.027	0.009	<0.0001	0.002			
0.046	0.016	<0.0001	0.002			
0.018	0.008	<0.0001	<0.001			
0.018	0.008	<0.0001	<0.001			
0.719	0.455	<0.0001	0.055	no result	1.32	6.53
0.061	0.006	<0.0001	<0.001	<0.05	<0.05	<0.10
0.027	0.005	<0.0001	<0.001	<0.05	0.05	<0.10
1.31	0.053	<0.0001	0.003	0.26	0.3	0.35
0.049	0.007	<0.0001	<0.001	<0.05	0.07	<0.1
0.025	0.006	<0.0001	0.002	<0.05	0.15±0.027	0.25
4.9	0.175	<0.0001	0.008	0.68±0.005	27.4±1.37	29.4±1.61
0.038	0.005	<0.0001	<0.001	<0.05	<0.05	0.1
0.034	0.003	<0.0001	<0.001	0.13	0.17	0.18
0.068	0.004	<0.0001	<0.001	0.06	0.06	<0.1

0.056	0.018	<0.001	0.003	<0.05	0.14	0.11
1.51	0.145	<0.001	0.009	0.15	3.9	4.59
0.042	0.021	<0.001	<0.001	<0.05	0.07	<0.1

0.162	0.048	<0.0001	0.001	<0.05	0.06±0.018	<0.1
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0.027	0.002	<0.0001	<0.001	<0.03	<0.05	<0.10
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0.02	0.004	<0.0001	0.004	<0.05	0.18 +/- 0.03	0.27 +/-0.09
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7.22	0.233	<0.0001	0.003	<0.05	<0.05	0.14+/-0.07
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0.241	0.113	0.241	0.017	0.11 ±0.019	0.57 ±0.052	0.26 ±0.09
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0.297	0.034	<0.0001	<0.001	<0.05	0.28 ±0.036	0.28 ±0.08
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Released under RTI - DTMR

Date	Site	pH	TDS 500mg/L	As 0.007mg/L	Cu 1.0mg/L	Mo 0.05mg/L	Zn 3.0mg/L	Pb 0.01mg/L	Hg 0.001mg/L	Mobile U 0.02mg/L	RA-226 0.5Bq/L	Gross alpha 0.1Bq/L	Gross beta 0.5Bq/L
EA Conditions 22/12/2010	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2		604	0.015	0.013	0.001	0.033	0.016	<0.0001	0.004	<0.03	<0.17	0.55
	GWM16		250	0.01	0.004	0.001	0.024	0.006	<0.0001	0.001	0.14	0.11	0.27
	GWM6		722	0.009	0.002	<0.001	0.021	0.002	<0.0001	<0.001	0.05	<0.1	<0.1
29/01/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP US	8.09	376	0.032	0.006		0.027	0.013	<0.0001	0.003	<0.06	0.66	0.59
	BL SP DS2	7.46	504	0.036	0.004		0.018	0.008	<0.0001	0.002	<0.06	0.19	0.3
	GWM6	7.27	740	0.038	0.02		0.319	0.094	<0.0001	0.002	<0.06	<0.13	<0.1
	GWM16	7.49	135	0.009	0.002		0.016	0.003	<0.0001	<0.001	<0.06	0.2	0.13
11/03/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	8.13	575	0.02	0.001	<0.001	0.007	<0.001	<0.0001	0.001		<0.1	0.19
	BL SP US	7.98	3020	0.002	0.006	<0.001	0.017	0.004	<0.0001	0.017		0.76	0.53
	GWM6	8.19	759	0.014	0.003	<0.001	0.02	0.004	<0.0001	<0.001		<0.11	0.1
	GWM16	7.43	136	0.01	<0.001	<0.001	0.015	0.002	<0.0001	<0.001		0.08	0.13
30/04/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.44	832	0.013	0.011	<0.001	0.076	0.022	<0.0001	0.005	<0.03	0.62	0.41
	BL SP US	7.33	3920	0.006	0.002	<0.001	0.019	0.003	<0.0001	0.012	0.06	<0.62	<0.1
	GWM6	7.12	190	0.017	0.002	0.001	0.127	0.009	<0.0001	<0.001	<0.03	<0.11	0.11
	GWM16	7.85	760	0.01	0.002	<0.001	0.014	0.01	<0.0001	<0.001	0.03	<0.12	0.1
26/05/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.19	1030	0.036	0.005	<0.001	0.034	0.005	<0.0001	0.003	<0.03	1.09	1.7
	BL SP US	7.12	4160	0.006	0.002	<0.001	0.01	0.002	<0.0001	0.008	0.06	<0.55	<0.1
	GWM6	7.83	702	0.01	<0.001	<0.001	0.01	0.002	<0.0001	<0.001	<0.03	<0.09	0.11
	GWM16	7.15	201	0.027	0.001	0.002	0.016	0.001	<0.0001	<0.001	<0.03	<0.08	<0.1
31/08/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2		4300	0.01	0.002	<0.001	0.006	0.002	<0.0001	0.003	0.07	<0.84	<0.1
	BL SP US		1160	0.056	0.02	<0.001	0.089	0.038	<0.0001	0.005	0.07	<0.25	0.2
	GWM6		751	0.01	0.003	<0.001	0.008	0.009	<0.0001	<0.001	0.05	<0.13	<0.1
	GWM16		438	0.034	0.004	0.004	0.038	0.004	<0.0001	<0.001	<0.03	<0.28	0.17
30/09/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.21	1110	0.004	0.001	<0.001	0.006	<0.001	<0.0001	0.003	0.03	<0.41	<0.1
	BL SP US	7.04	4440	0.028	<0.001	0.001	<0.005	<0.001	<0.0001	0.001	0.07	<1.32	<0.1

	GWM6	7.54	729	0.012	0.001	<0.001	0.015	<0.001	<0.0001	<0.001	<0.04	<0.13	0.15
	GWM16	7.37	522	0.031	0.002	0.004	0.032	0.003	<0.0001	<0.001	<0.03	0.37	0.56
23/10/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7	1200	0.053	0.012	<0.001	0.055	0.022	<0.0001	0.004	0.03	<0.38	0.87
	BL SP US	7.13	4660	0.009	0.008	<0.001	0.016	0.01	<0.0001	0.004	<0.04	<0.6	<0.1
	GWM6	7.67	757	0.014	0.002	<0.001	0.016	0.003	<0.0001	<0.001	<0.04	<0.11	<0.1
	GWM16	7.26	559	0.025	0.003	0.003	0.027	0.004	<0.0001	<0.001	<0.04	0.84	0.32
12/11/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.37	1290	0.062	0.006	<0.001	0.026	0.009	<0.0001	0.004	0.04	<0.3	0.25
	BL SP US	7.27	4430	0.01	0.002	<0.001	0.006	0.001	<0.0001	0.003	0.08	1.74	1.07
	GWM6	7.75	815	0.018	0.002	<0.001	0.016	0.001	<0.0001	<0.001	0.04	<0.05	<0.01
	GWM16	7.44	706	0.025	0.003	0.003	0.047	0.004	<0.0001	<0.001	<0.04	0.26	0.46
6/01/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.65	1410	0.056	0.006	0.001	0.094	0.002	<0.0001	0.001	0.13	<0.19	0.22
	BL SP US	7.43	5080	0.007	0.002	<0.001	<0.005	0.002	<0.0001	0.01	0.09	0.91	0.46
	GWM6	8.04	798	0.015	0.002	<0.001	0.008	0.004	<0.0001	<0.001	0.1	<0.05	0.15
	GWM16	7.36	529	0.022	0.004	0.002	0.022	0.007	<0.0001	0.002	<0.06	0.13	0.12
16/02/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.65	290	0.018	0.002	0.001	0.012	0.004	<0.0001	<0.001	<0.03	1.17	0.4
	BL SP US	7.37	776	0.006	0.026	<0.001	0.077	0.05	<0.0001	0.002	<0.03	0.13	0.84
	GWM6	8.09	798	0.014	0.002	<0.001	0.02	0.004	<0.0001	<0.001	<0.03	<0.09	<0.1
	GWM16	7.08	240	0.011	0.002	<0.001	0.016	0.004	<0.0001	<0.001	0.06	<0.05	0.11
20/04/2012	BL SP DS1	7.31	1230	0.006	0.009	<0.001	0.03	0.016	<0.0001	0.003	ugh water for sample		
	BL SP DS2	7.34	550	0.004	<0.001	<0.001	<0.005	<0.001	<0.0001	0.002	<0.03	<0.05	<0.1
	BL SP US	7.28	1260	0.003	<0.001	<0.001	0.014	0.002	<0.0001	0.001	0.05	0.08	0.3
	GWM6	7.92	830	0.008	<0.001	<0.001	0.024	0.008	<0.0001	<0.001	0.03	<0.05	<0.1
	GWM16	7.22	214	0.015	<0.001	0.001	0.01	0.003	<0.0001	<0.001	0.04	<0.05	<0.1
17/05/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.18	692	0.023	0.012	<0.001	0.053	0.025	<0.0001	0.003	0.03	<0.05	0.27
	BL SP US	7.15	1520	0.007	<0.001	<0.001	0.006	0.001	<0.0001	0.001	<0.03	<0.18	0.1
	GWM6	7.94	814	0.012	0.003	0.002	0.026	0.016	<0.0001	<0.001	0.03	<0.05	<0.1
	GWM16	7.18	352	0.028	0.004	0.003	0.031	0.009	<0.0001	<0.001	<0.03	0.16	0.19
30/06/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry

	BL SP DS2	7.59	910	0.027	0.008	<0.001	0.028	0.015	<0.0001	0.002	0.05	0.07	0.24
	BL SP US	7.54	1670	0.007	<0.001	<0.001	0.008	<0.001	<0.0001	<0.001	0.05	<0.08	<0.1
	GWM6	8.3	830	0.007	0.003	0.001	0.024	0.006	<0.0001	<0.001	<0.03	<0.05	<0.1
	GWM16	7.69	620	0.025	0.004	0.003	0.038	0.005	<0.0001	<0.001	0.04	<0.13	0.15
26/07/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.34	421	0.018	<0.001	<0.001	<0.005	<0.001	<0.0001	0.001	0.001	0.001	0.001
	BL SP US	7.15	1720	0.009	0.001	<0.001	0.009	0.001	<0.0001	0.001	0.001	0.001	0.001
	GWM6	7.77	761	0.008	0.001	<0.001	0.016	0.005	<0.0001	<0.001	<0.001	<0.001	<0.001
	GWM16	6.94	465	0.014	0.001	0.002	0.023	0.008	<0.0001	0.001	0.001	0.001	0.001
19/09/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.33	1040	0.017	0.003	<0.001	0.009	0.007	<0.0001	<0.001	<0.04	<0.10	0.3
	BL SP US	7.18	2220	0.004	0.004	<0.001	0.012	0.007	<0.0001	<0.001	0.05	<0.19	0.31
	GWM 6	7.63	783	0.008	<0.001	<0.001	0.009	0.004	<0.0001	<0.001	<0.03	<0.05	<0.10
	GWM 16	7.02	561	0.017	0.006	0.002	0.021	0.006	<0.0001	0.002	<0.04	<0.06	0.11
31/10/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	1100	0.067	0.001	0.002	0.014	<0.001	<0.0001	<0.001	0.05	<0.18	<0.1	<0.1
	BL SP US	1880	0.008	0.041	<0.001	0.153	0.08	<0.0001	0.012	0.08	0.85	0.8	0.8
	GWM6	1220	0.016	0.018	<0.001	0.074	0.035	<0.0001	0.005	0.04	<0.08	0.2	0.2
	GWM16	680	0.018	0.004	0.002	0.014	0.004	<0.0001	0.002	<0.03	0.17	0.12	0.12
11/12/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.59	1150	0.069	0.011	<0.001	0.049	0.028	<0.0001	0.006	0.06	<0.42	<0.1
	BL SP US	-	-	0.032	0.054	<0.001	0.276	0.679	<0.0001	0.038	* insufficient water to sample		
	GWM6	7.46	638	0.022	0.01	0.002	0.839	0.033	<0.0001	0.004	0.32	<0.13	0.43
	GWM16	7.93	774	0.008	<0.001	<0.001	0.008	<0.001	<0.0001	<0.001	0.07	<0.05	<0.1
15/01/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.44	1240	0.046	0.004	0.001	0.028	0.003	<0.0001	<0.001	<0.03	<1.43	<0.1
	BL SP US	7.3	2000	0.011	0.019	<0.001	0.157	0.134	<0.0001	0.019	* insufficient water to sample		
	GWM6	7.97	774	0.007	0.002	<0.001	0.037	0.005	<0.0001	<0.001	0.03	<0.05	<0.1
	GWM16	7.34	1580	0.022	0.011	0.002	0.629	0.039	<0.0001	0.004	0.13	0.27	0.58
22/02/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.84	507	0.057	0.003	<0.001	0.017	0.006	<0.0001	<0.001	0.32	<0.11	0.15
	BL SP US	7.04	568	0.014	0.055	0.002	0.329	0.103	0.0001	0.011	0.18	0.36	0.75
	GWM6	8.22	800	0.108	0.016	0.002	0.059	0.004	<0.0001	<0.001	0.09	<0.05	<0.1
	GWM16	6.7	3310	0.068	0.072	0.003	2.69	0.239	<0.0001	0.018	0.78	0.45	1.03

27/03/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.55	704	0.063	0.003	0.001	0.018	0.006	<0.0001	0.001	<0.03	0.49	0.44
	BL SP US	7.46	2700	0.017	0.071	<0.001	1.73	0.161	<0.0001	0.015	0.23	1.3	1.48
	GWM6	7.91	706	0.055	0.001	<0.001	0.027	0.007	<0.0001	<0.001	0.03	<0.05	<0.10
	GWM16	7.15	3820	0.099	0.117	0.003	4.1	0.353	<0.0001	0.026	0.27	1.02	1.12
30/04/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.53	995	0.015	0.002	<0.001	0.014	0.001	<0.0001	<0.001	<0.03	<0.90	<0.10
	BL SP US	NT	NT	0.003	0.002	<0.001	<0.005	0.006	<0.0001	0.009			
	GWM6	7.98	731	0.021	0.003	<0.001	0.036	0.005	<0.0001	<0.001	<0.03	<0.05	<0.10
	GWM16	7.25	709	0.01	0.004	<0.001	0.027	0.006	<0.0001	<0.001	<0.03	0.2	0.25
30/05/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2		981	0.092	0.011	0.001	0.063	0.02	<0.0001	0.003	0.04	<0.25	0.24
	BL SP US		1640	0.053	0.136	0.001	0.614	0.279	<0.0001	0.055			
	GWM6		715	0.015	0.002	<0.001	0.018	0.01	<0.0001	<0.001	<0.03	<0.05	0.1
	GWM16		5050	0.053	0.063	0.003	2.41	0.199	<0.0001	0.009			
25/06/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2		1090	0.085	0.002	0.003	0.023	0.009	<0.0001	0.016	0.06	0.84	0.24
	BL SP US			0.043	0.106	<0.001	0.452	0.232	<0.0001	0.045			
	GWM6		753	0.066	0.001	0.002	0.015	0.003	<0.0001	<0.001	<0.03	<0.05	<0.10
	GWM16		12900	0.271	0.356	0.011	11.3	0.981	<0.0005	0.067			
23/07/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2		1130	0.104	0.003	0.002	0.019	0.002	<0.0001	0.007	0.03	2.43	0.12
	BL SP US	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	GWM6		766	0.033	0.001	0.001	0.011	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	GWM16	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
14/08/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2		1080	0.107	0.014	0.002	0.258	0.072	<0.0001	0.004			
	BL SP US	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	GWM6		770	0.022	0.003	<0.001	0.013	0.002	<0.0001	<0.001			
	GWM16	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
28/02/2014	BL SP DS1	Dry											
	BL SP DS 2		633	0.082	0.012	0.001	0.059	0.013	<0.0001	0.002	0.06	<0.42	<0.83
	BL SP US		1220	0.007	0.02	<0.001	0.087	0.026	<0.0001	0.003	0.1	<0.25	<0.5

	GWM16		212	0.008	0.003	<0.001	0.014	0.005	<0.0001	<0.001	<0.05	<0.05	0.17
	GWM6		736	0.014	0.005	<0.001	0.037	0.009	<0.0001	<0.001	<0.05	<0.07	<0.14
22/04/2014	BL SP DS1	Dry											
	BL SP DS 2		931	0.051	0.009	<0.001	0.027	0.009	<0.0001	0.002			
	BL SP US		1880	0.007	0.018	<0.001	0.046	0.016	<0.0001	0.002			
	GWM16		120	0.011	0.003	<0.001	0.018	0.008	<0.0001	<0.001			
	GWM6		788	0.009	0.002	<0.001	0.018	0.008	<0.0001	<0.001			
10/07/2014	BL SP DS1	Dry											
	BL SP US		2940	0.026	0.29	<0.001	0.719	0.455	<0.0001	0.055	no result	1.32	6.53
	GWM16		448	0.019	0.005	0.002	0.061	0.006	<0.0001	<0.001	<0.05	<0.05	<0.10
	GWM6		699	0.01	0.004	<0.001	0.027	0.005	<0.0001	<0.001	<0.05	0.05	<0.10
23/09/2014	BL SP DS1	Dry											
	BL SP US	Dry											
	GWM16		1470	0.033	0.029	0.008	1.31	0.053	<0.0001	0.003	0.26	0.3	0.35
	GWM6		718	0.012	0.004	<0.001	0.049	0.007	<0.0001	<0.001	<0.05	0.07	<0.1
17/10/2014	BL SP DS1	Dry											
	BL SP DS 2		1590	0.142	0.007	0.002	0.025	0.006	<0.0001	0.002	<0.05	0.15±0.027	0.25
	BL SP US	Dry											
	GWM16		1960	0.039	0.055	0.005	4.9	0.175	<0.0001	0.008	0.68±0.005	27.4±1.37	29.4±1.61
	GWM6		736	0.012	0.009	<0.001	0.038	0.005	<0.0001	<0.001	<0.05	<0.05	0.1
12/10/2014	BL SP DS1	Dry											
	BL SP DS 2		1490	0.163	0.005	0.002	0.034	0.003	<0.0001	<0.001	0.13	0.17	0.18
	BL SP US	Dry											
	GWM16	Dry											
	GWM6		720	0.012	0.005	<0.001	0.068	0.004	<0.0001	<0.001	0.06	0.06	<0.1
27/02/2015	BL SP DS1	Dry											
	BL SP DS 2		1800	0.134	0.008	0.002	0.056	0.018	<0.001	0.003	<0.05	0.14	0.11
	BL SP US	Dry											
	GWM16		3270	0.044	0.071	0.003	1.51	0.145	<0.001	0.009	0.15	3.9	4.59
	GWM6		749	0.007	0.004	<0.001	0.042	0.021	<0.001	<0.001	<0.05	0.07	<0.1
29/06/2015	BL SP DS1	Dry											
	BL SP US	Dry											
	GWM16	Dry											

	GWM6		716	0.056	0.007	0.002	0.162	0.048	<0.0001	0.001	<0.05	0.06±0.018	<0.1
12/08/2015	BL SP DS1	Dry											
	BL SP US	Dry											
	GWM16	Dry											
	GWM6		736	0.007	0.002	<0.001	0.027	0.002	<0.0001	<0.001	<0.03	<0.05	<0.10
15/10/2015	BL SP DS1	Dry											
	BL SP DS 2	6.84	1270	0.105	0.003	0.001	0.02	0.004	<0.0001	0.004	<0.05	0.18 +/- 0.03	0.27 +/-0.09
	BL SP US	Dry											
	GWM16	Dry											
	GWM6	6.64	787	0.113	0.039	0.004	7.22	0.233	<0.0001	0.003	<0.05	<0.05	0.14+/-0.07
18/12/2015	BL SP DS1												
	BL SP DS 2		2760	0.272	0.044	0.003	0.241	0.113	0.241	0.017	0.11 ±0.019	0.57 ±0.052	0.26 ±0.09
	BL SP US												
	GWM16												
	GWM6		224	0.125	0.006	0.004	0.297	0.034	<0.0001	<0.001	<0.05	0.28 ±0.036	0.28 ±0.08

Released under RTI - DTMR

I essentially agree with the assessment, but am uncertain whether all the contamination comes from surface tailings. Could a minor come from groundwater accessing underground workings, as air would probably penetrate these as well. However, I agree that there is no doubt that the contamination is derived from exposed ore.

Where do we go from here? Cattle, wildlife and people using creeks (especially Keelbottom Creek) could be affected. Keelbottom Creek should be regularly monitored. Similarly, the Burdekin River, for which Keelbottom Creek is a tributary, should be regularly monitored for radiation and relevant heavy metals in case contamination occurs subsequent to particular weather events.

Yours sincerely  
Mike Rubenach

(Dr Mike Rubenach, retired Senior Lecturer, Geology, JCU)

6/8/2016

Released under RTI/OMR

**Subject:** URGENT Ben Lomond pollution

**From:** David Sewell (Sch 4 CTPI)

**To:** mangocube6@yahoo.co.uk;

**Cc:** Sch 4 CTPI; bill@laingex.com; Sch 4 CTPI

**Date:** Wednesday, 31 August 2016, 14:21

Hi Mark,

Here's the letter sent to you, Steven Miles and Andrew Lynam on 8/8/16. We have acknowledgement of the receipt of the emailed letter and we want to take further action, by making the situation known to the public, but would prefer a response from either or all of you before doing so.

Regards,

Dave Sewell

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### Attachments

- Letter to the Ministers 8:8:16 copy.docx (132.86 KB)
- Ben Lomond Receiving Water Monitoring Results -20160324
- Ben\_Lomond - Groundwater Data -20150212 copy.xlsx (25.8
- Laing Report-Ben Lomond Water Pollution-Final copy.pdf (10
- Mike Rubenach assesment.docx (75.12 KB)

8/08/2016

To:

The Honourable Dr Steven Miles MP Minister  
for Environment and Heritage Protection. and Minister for  
National Parks and the Great Barrier Reef

The Honourable Dr Andrew Lynam MP Minister for Natural  
Resources and Mines

The Honourable Mark Bailey MP Minister for Energy and  
Water Supply

Dear Ministers Miles, Lynam and Bailey

It is now over a year since the productive meeting  
between Citizens Against Mining Ben Lomond (CAMBL)  
and yourselves and staff at the 2015 Community Cabinet  
in Townsville. You reiterated your Government's policy of  
prohibiting uranium mining in Queensland, a policy which  
we applaud.

At that meeting we raised our principal concern - the  
capacity of the Ben Lomond site, already containing major  
surface and underground uranium mineralisation, to  
seriously pollute the local environment (mainly surface  
and subsurface water regimes), and the larger river  
watersheds of Keelbottom Creek and the downstream  
Burdekin River. We raised a series of questions around  
this issue, you accepted their validity, and you invited us  
to liaise with your Departments on, inter alia, the sampling  
regime in the leaseholder Uranium Mineral Ventures  
Incorporated's Environmental Authority EPML00418313  
and related ML's 1399 and 1419.

We have since acquired the water sampling analyses of  
receiving water and groundwater, as taken by the leaseholder  
under the conditions of their Environmental Authority (EA)  
between December 2010 and December 2015. Laing  
Exploration Pty Ltd has assessed the analyses, and identified the

implications for the water regimes in the Ben Lomond watershed. The Laing Exploration Report is attached.

Each water regime shows major exceeding of the conditions, throughout the five years 2010-2015, in chemical elements critical to human health: alpha radiation, beta radiation, uranium, lead, and arsenic.

<u>radiation</u>	<u>Uranium</u>	<u>Lead</u>	<u>Alpha radiation</u>	<u>Beta</u>
<u>Number of samples over Limit</u>			<u>Arsenic</u>	
5%	25%	85%	47%	16%
<u>Highest concentration vs Limit</u>				
3.4	98	39	274	59

The elemental levels constitute major breaches of the EA - in other words, major pollution. The Laing Report demonstrates that the polluted water regimes cannot be ascribed to anything other than the underground mineralisation brought to surface as ore dumps and associated rock material. Whilever the Ben Lomond surface dumps remain as they are, they will perpetuate the current polluted water regimes.

The consistent temporal linear concentrations over the five year sampling period, with the anomalous analyses spread throughout the period, indicate that the pollution was present before, and after, the sampling period; and they create the reasonable assumption that the pollution began at the time of the original mining and ore dump formation circa 1981, and will most likely be continuing to the present and into the future.

The Ben Lomond pollution is thus a major addition to the environment, in all three possible spaces; (1) geochemical (2) temporal, and (3) spatial:

- (1) It comprises major levels of harmful elements which exceed the EA conditions by orders of magnitude,
- (2) It has continued (and still continues) over probably the three decades of existence of the underground mine and the surface

ore dumps, and

(3) It is present along a significant length of local, and probably regional, streams which lead into the Burdekin River, the largest river in Queensland.

Minister Miles (letter 1 below) advised that your Government is changing the Environmental Authority for the Ben Lomond site. The changes "primarily relate to environmental monitoring requirements and receiving water quality objectives, to ensure the site is managed in a manner that protects the environmental values of the area." We endorsed this approach in our meeting. While we applaud the recent chain of responsibility amendment to the Environment Act, recently passed in the Queensland Parliament by your government, we have since compared the two Ben Lomond EA's (2007 and 2015), and we are disappointed to see that little if anything has changed in the substantive conditions of the 2015 version of the EA. The geochemical conditions remain unchanged. It can be interpreted furthermore, that the 2015 conditions are broader than the earlier conditions: (2007 EA) "authorises exploration drilling .... does not authorise any mining, ore extraction or processing" whereas (2015 EA) "authorises exploration drilling .... does not authorise any mining, ore extraction or processing .... authorises large bulk sampling or constructing an exploratory shaft, adit or open pit". An open pit in particular would significantly increase the exposure of the orebody to the atmosphere and biosphere, from the current surface ore dumps.

The EA requires the leaseholder to conduct bi-monthly sampling of 'receiving waters affected by the release of process water or storm water contaminated by the mining activities, or both' and 'groundwater, affected by the mining activities' at specified locations, *and report to the DEHP if specified levels are exceeded* (our italics).

Three issues are raised by the current situation:

1. Given the major breach of the DEHP's prescribed standards in five elements harmful to human and animal health, what correction does DEHP plan:

- to the environment, damaged already;
- to the leaseholder, as penalties for major sustained pollution and as a deterrent to continued pollution?

2. Has the leaseholder reported the pollution to DEHP as prescribed in their EA? If they have, what has DEHP done in response, and if they have not, what measures do DEHP and DNRM plan to

- penalise the leaseholder,
- require them to cleanup and pay for the environmental pollution,
- force them into future compliance, or strip them of their non-compliant leases?

3. Have the Charters Towers, Burdekin and Townsville City Councils been notified of this major pollution in their riverine watersheds? If so, what advice has been given to them in regard to their water testing and consumption? We possess the results of water testing from Charters Towers which show inter alia, arsenic levels at 86% of the elemental limits in the Ben Lomond leaseholder's EA.

We look forward to your response. The Ben Lomond pollution being major, long-lived, and continuing, we expect a timely and detailed response to all components of our questions.

Yours sincerely

David Sewell

Spokesperson for Citizens Against Mining Ben Lomond  
(CAMBL)

Sch 4 CTP!

N/R

We attach also the written advice of Dr Michael Rubenach, retired Senior Lecturer, Department of Geology, James Cook University. Dr Rubenach has been involved technically with the Ben Lomond issue since the original Minatome mining and the Warden's Court hearing of 1981-82:

"I essentially agree with the Laing Exploration Report, but am uncertain whether all the contamination comes from surface tailings. A minor proportion could come from groundwater accessing underground workings, as air would probably penetrate these as well. However, I agree that there is no doubt that the contamination is derived from exposed ore.

Where do we go from here? Cattle, wildlife and people using creeks (especially Keelbottom Creek) could be affected. Keelbottom Creek should be regularly monitored. Similarly, the Burdekin River, for which Keelbottom Creek is a tributary, should be regularly monitored for radiation and relevant heavy metals in case contamination occurs subsequent to particular weather events.

Yours sincerely  
Dr Mike Rubenach  
6 August 2016"

Virus-free. [www.avast.com](http://www.avast.com)

Ben Lomond Receiving Water Monitoring Results from 22 December 2010 to 18 December 2015

Environmental authority holder      Uranium Mineral Ventures Incorporated  
 Environmental authority (EA)      EPML00418313  
 EA Condition      C1-1

Date	Site	pH	TDS	As	Cu	Mo	Zn	Pb	Hg	Mobile U	RA-226	Gross alpha	Gross beta
EA Conditions		6.5-8.5	500mg/L	0.007mg/L	1.0mg/L	0.05mg/L	3.0mg/L	0.01mg/L	0.001mg/L	0.02mg/L	0.5Bq/L	0.1Bq/L	0.5Bq/L
22/12/2010	SMW22	*	121	0.004	0.001	0.003	<0.005	0.001	<0.0001	<0.001	0.4	<0.06	<0.1
	SWM6	*	148	0.007	0.001	0.008	0.006	<0.001	<0.0001	0.003	<0.03	0.06	0.12
	SWM23	*	114	0.003	<0.001	0.001	0.006	0.002	<0.0001	<0.001	<0.03	<0.07	<0.1
	KB2	*	88	<0.001	0.002	<0.001	0.017	<0.001	<0.0001	<0.001	0.03	<0.07	0.11
	SWM24	*	204	0.014	0.002	<0.001	0.01	0.001	<0.0001	<0.001	<0.03	<0.08	<0.1
	SWM11	*	92	<0.001	0.001	<0.001	0.008	0.001	<0.0001	<0.001	<0.03	<0.06	<0.1
	KB13	*	97	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.03	<0.06	<0.1
	KB3	*	105	0.001	0.006	<0.001	0.021	0.001	<0.0001	<0.001	<0.04	<0.07	<0.1
	SWM4	*	200	0.004	0.002	<0.001	0.024	0.002	<0.0001	<0.001	<0.03	<0.08	0.12
29/01/2011	SWM4	7.58	292	0.004	<0.001	*	0.02	<0.001	<0.0001	0.001	<0.06	<0.05	<0.1
	SWM24	7.57	314	0.039	<0.001	*	<0.005	<0.001	<0.0001	<0.001	<0.06	<0.05	<0.1
	SWM6	7.79	144	0.002	0.004	*	0.021	<0.001	<0.0001	<0.001	<0.06	0.05	<0.1
	SWM22	7.82	107	0.009	<0.001	*	0.006	<0.001	<0.0001	0.005	<0.06	<0.05	<0.1
	SWM11	7.75	58	<0.001	<0.001	*	<0.005	<0.001	<0.0001	<0.001	<0.06	0.06	<0.1
	SWM23	7.21	100	0.003	0.001	*	0.013	0.002	<0.0001	<0.001	<0.06	<0.07	0.14
	KB2	7.28	69	<0.001	0.005	*	0.012	0.008	<0.0001	<0.001	<0.06	<0.05	<0.1
	KB13	7.37	69	<0.001	<0.001	*	<0.005	<0.001	<0.0001	<0.001	<0.06	<0.05	<0.1
	KB3	7.31	86	0.001	<0.001	*	<0.005	<0.001	<0.0001	<0.001	<0.06	<0.05	<0.1
11/03/2011	SWM24	7.75	175	0.02	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	*	<0.05	<0.1
	SWM22	7.37	71	0.013	0.006	0.003	0.099	0.012	<0.0001	0.006	*	0.79	0.37
	SWM11	6.79	55	<0.001	0.005	<0.001	0.022	0.012	<0.0001	0.002	*	<0.07	0.19
	SWM4	7.84	189	0.008	<0.001	0.01	0.008	<0.001	<0.0001	0.006	*	<0.05	<0.1
	SWM23	7.45	122	<0.001	<0.001	0.001	<0.005	<0.001	<0.0001	<0.001	*	<0.05	<0.1
	KB3	7.48	116	<0.001	0.005	<0.001	0.024	<0.001	<0.0001	<0.001	*	<0.05	<0.1
	KB13	7.46	74	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	*	<0.05	<0.1

	SWM6	*	*	*	*	*	*	*	*	*	*	*	*
	KB2	*	*	*	*	*	*	*	*	*	*	*	*
30/04/2011	SMW22	7.8	98	0.002	<0.001	<0.001	<0.005	<0.001	<0.0001	0.002	<0.03	<0.08	<0.1
	SWM6	8	304	0.004	<0.001	0.011	<0.005	<0.001	<0.0001	0.025	0.03	0.19	<0.1
	SWM23	7.23	98	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	7.67	89	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM24	*	*	*	*	*	*	*	*	*	*	*	*
	SWM11	7.67	94	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.72	101	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	*	<0.05	<0.1
	KB3	*	*	*	*	*	*	*	*	*	*	*	*
	SWM4	7.84	372	<0.001	0.002	0.004	0.008	0.001	<0.0001	0.003	0.04	<0.06	<0.1
26/05/2011	SMW22	7.88	504	0.003	0.001	0.007	0.007	<0.001	<0.0001	0.011	<0.03	0.21	<0.1
	SWM6	8.01	452	0.003	<0.001	0.016	<0.005	<0.001	<0.0001	0.049	0.05	0.73	<0.1
	SWM23	7.37	102	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	7.76	115	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM24	7.88	218	0.014	<0.001	<0.001	<0.005	<0.001	<0.0001	0.001	<0.04	<0.08	0.1
	SWM11	7.61	97	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.68	112	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB3	7.94	218	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	*	*	*
	SWM4	8.1	1090	0.004	0.001	<0.001	<0.005	0.001	<0.0001	0.007	<0.03	<0.16	<0.1
31/08/2011	SMW22	*	926	0.028	0.002	0.044	<0.005	<0.001	<0.0001	0.046	0.13	<0.28	0.11
	SWM6	*	447	0.004	<0.001	0.04	<0.005	<0.001	<0.0001	0.104	0.06	3.3	0.49
	SWM23	*	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	KB2	*	114	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.04	<0.07	<0.1
	SWM24	*	284	0.044	<0.001	0.001	<0.005	<0.001	<0.0001	0.002	0.08	<0.09	<0.1
	SWM11	*	120	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.06	<0.1
	KB13	*	109	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.06	<0.1
	KB3	*	351	<0.001	0.002	<0.001	0.019	0.002	<0.0001	0.002	0.05	<0.07	<0.1
	SWM4	*	1380	0.007	0.002	0.001	<0.005	0.002	<0.0001	0.025	<0.05	0.79	<0.1
30/09/2011	SMW22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	7.95	1380	0.01	<0.001	0.001	<0.005	<0.001	<0.0001	0.018	<0.03	0.39	<0.1

	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	KB2	7.95	155	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.03	<0.05	<0.1
	SWM24	7.86	282	0.011	<0.001	0.001	<0.005	<0.001	<0.0001	0.002	<0.03	<0.07	<0.1
	SWM11	7.86	156	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.24	147	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB3	7.89	419	<0.001	<0.001	0.001	<0.005	<0.001	<0.0001	0.001	<0.03	<0.07	<0.1
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
23/10/2011	SMW22	7.49	892	0.002	<0.001	0.021	<0.005	<0.001	<0.0001	0.019	0.06	0.31	<0.1
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	KB2	7.89	155	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.04	<0.05	<0.1
	SWM24	7.94	303	0.414	0.004	0.002	0.01	0.001	<0.0001	0.001	<0.03	<0.05	<0.1
	SWM11	7.67	164	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.15	152	<0.001	0.003	<0.001	0.008	<0.001	<0.0001	<0.001	<0.04	<0.05	<0.1
	KB3	7.57	499	0.002	0.003	0.001	0.01	<0.001	<0.0001	0.001	0.07	<0.32	0.14
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
12/11/2011	SMW22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	KB2	7.99	191	0.001	0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.03	<0.05	<0.1
	SWM24	7.95	309	0.086	<0.001	0.001	<0.005	0.001	<0.0001	0.001	<0.03	<0.05	<0.1
	SWM11	7.85	199	0.001	0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.45	176	0.001	0.009	<0.001	0.018	<0.001	<0.0001	<0.001	0.07	<0.05	<0.1
	KB3	8.11	498	0.002	0.002	0.001	0.007	<0.001	<0.0001	<0.001	0.05	<0.05	<0.1
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
6/01/2012	SMW22	7.96	859	0.005	<0.001	0.019	<0.005	<0.001	<0.0001	0.01	<0.07	0.2	<0.1
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM23	7.28	251	0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.04	<0.05	0.18
	KB2	7.5	85	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.06	0.82	<0.1
	SWM24	8.08	338	0.019	0.002	0.001	0.024	<0.001	<0.0001	0.001	<0.08	<0.05	0.14
	SWM11	7.39	105	<0.001	<0.001	<0.001	0.012	<0.001	<0.0001	<0.001	<0.06	<0.05	0.22
	KB13	7.54	100	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.06	<0.05	<0.1

	KB3	7.49	131	<0.001	0.006	<0.001	0.018	0.001	<0.0001	<0.001	<0.06	0.47	<0.1
	SWM4	8.23	986	0.011	0.002	0.002	0.006	<0.001	<0.0001	0.006	<0.06	<0.18	<0.1
16/02/2012	SMW22	7.81	266	0.002	<0.001	0.008	<0.005	<0.001	<0.0001	0.002	0.04	<0.05	<0.1
	SWM6	8	290	0.008	<0.001	0.017	<0.005	<0.001	<0.0001	0.01	0.04	<0.08	<0.1
	SWM23	7.03	88	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	7.26	108	<0.001	0.001	<0.001	0.006	<0.001	<0.0001	<0.001	0.07	<0.05	<0.1
	SWM24	7.02	154	0.001	<0.001	0.011	0.006	<0.001	<0.0001	0.008	0.1	0.26	0.1
	SWM11	7.23	60	<0.001	<0.001	<0.001	0.007	0.002	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.34	76	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB3	7.47	142	0.001	0.002	<0.001	0.007	0.003	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM4	7.96	382	0.002	<0.001	<0.001	0.009	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
20/04/2012	SWM22	7.39	406	0.002	0.001	0.005	<0.005	<0.001	<0.0001	0.003	0.04	<0.05	<0.1
	SWM6	7.68	418	0.004	<0.001	0.02	0.03	<0.001	<0.0001	0.022	0.05	0.25	0.12
	SWM23	7.15	90	<0.001	<0.001	<0.001	0.011	0.003	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM24	7.88	314	0.014	<0.001	0.001	<0.005	<0.001	<0.0001	<0.001	0.04	<0.05	<0.1
	SWM11	7.46	83	<0.001	<0.001	<0.001	0.024	0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.49	85	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	*	*	*	*	*	*	*	*	*	*	*	*
	KB3	*	*	*	*	*	*	*	*	*	*	*	*
	SWM4	7.81	932	0.004	<0.001	<0.001	<0.005	<0.001	<0.0001	0.007	0.03	0.1	<0.1
17/05/2012	SMW22	7.82	580	0.003	0.002	0.009	0.009	0.002	<0.0001	0.01	<0.03	0.18	<0.1
	SWM6	7.65	470	0.005	<0.001	0.035	<0.005	<0.001	<0.0001	0.045	0.03	1.31	0.19
	SWM23	7.36	101	0.002	0.002	<0.001	0.061	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	7.78	95	<0.001	<0.001	<0.001	0.019	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM24	7.84	316	0.041	0.005	0.001	0.012	<0.001	<0.0001	0.002	<0.03	<0.05	<0.1
	SWM11	7.62	99	<0.001	<0.001	<0.001	0.008	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	7.64	99	<0.001	0.005	<0.001	0.015	0.003	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB3	7.77	212	0.002	<0.001	<0.001	0.015	0.003	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM4	8.49	1250	0.002	0.002	0.001	0.006	<0.001	<0.0001	0.033	<0.03	0.56	0.2
30/06/2012	SMW22	8.15	626	0.005	<0.001	0.018	0.006	0.001	<0.0001	0.047	*	1.21	<0.1
	SWM6	8.08	610	0.001	<0.001	0.012	<0.005	<0.001	<0.0001	0.036	0.04	0.37	0.11

	SWM23	7.21	284	<0.001	<0.001	<0.001	<0.005	<0.001	0.0001	<0.001	0.06	<0.05	<0.1
	KB2	7.49	173	<0.001	<0.001	<0.001	0.008	0.001	<0.0001	<0.001	0.43	<0.05	<0.1
	SWM24	*	*	*	*	*	*	*	*	*	*	*	*
	SWM11	7.48	123	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.04	<0.05	<0.1
	KB13	7.47	181	<0.001	0.002	<0.001	0.009	<0.001	0.0001	<0.001	0.007	<0.05	<0.1
	KB3	7.84	227	<0.001	0.003	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM4	8.16	1110	0.002	0.001	<0.001	0.006	<0.001	<0.0001	0.022	<0.03	0.38	<0.1
26/07/2012	SMW22	7.85	265	<0.001	<0.001	0.005	<0.005	<0.001	<0.0001	0.005	<0.03	0.09	<0.10
	SWM6	8.03	328	0.005	<0.001	0.009	<0.005	<0.001	<0.0001	0.012	<0.03	0.32	<0.10
	SWM23	7.06	126	0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB2	7.38	74	<0.001	<0.001	<0.001	<0.005	0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM24	8.07	267	0.015	<0.001	<0.001	<0.005	<0.001	<0.0001	0.001	<0.03	<0.05	<0.10
	SWM11	7.01	75	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB13	7.31	67	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB3	7.65	133	<0.001	0.002	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM4	7.82	398	0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	0.001	<0.03	<0.05	<0.10
19/09/2012	KB 13	7.55	108	<0.001	0.001	<0.001	<0.005	0.002	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB 2	7.72	123	<0.001	<0.001	<0.001	<0.005	0.006	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM 22	7.74	899	0.005	<0.001	0.014	<0.005	<0.001	<0.0001	0.028	0.05	0.28	0.14
	SWM 23	7.19	187	0.002	<0.001	<0.001	0.076	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM 24	8.1	339	0.023	0.001	0.001	0.008	0.004	<0.0001	0.001	<0.03	<0.05	<0.10
	SWM 11	7.64	139	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM 4	8.04	1310	0.005	0.001	<0.001	0.005	0.005	<0.0001	0.018	<0.03	0.18	<0.10
	SWM 6	8.07	570	0.006	<0.001	0.034	<0.005	0.002	<0.0001	0.044	<0.03	0.72	0.23
	KB 3	7.91	288	<0.001	0.001	<0.001	<0.005	0.003	<0.0001	<0.001	<0.03	<0.05	<0.10
31/10/2012	KB13	*	103	<0.001	0.009	<0.001	0.182	0.005	<0.0001	<0.001	0.03	<0.05	<0.1
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	*	320	0.012	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.06	<0.06	<0.1
	SWM11	*	133	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.04	<0.05	<0.1

	KB2	*	130	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.12	<0.05	<0.1
	KB3	*	384	<0.001	0.002	<0.001	0.04	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
11/12/2012	KB13	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	7.98	314	0.063	<0.001	0.001	0.096	0.003	<0.0001	<0.001	0.1	<0.05	<0.1
	SWM11	7.98	174	<0.001	0.001	<0.001	0.023	0.002	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	8.08	146	<0.001	<0.001	<0.001	0.009	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB3	8.06	462	<0.001	<0.001	<0.001	0.054	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
15/01/2013	KB13	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	8.03	324	0.02	0.003	0.001	0.059	0.003	<0.0001	<0.001	<0.03	<0.07	<0.1
	SWM11	7.78	218	0.002	0.001	0.001	0.021	0.002	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	8.3	201	<0.001	<0.001	<0.001	0.02	0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB3	7.81	550	<0.001	<0.001	<0.001	0.008	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
22/02/2013	KB13	7.64	73	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.005	<0.04	<0.05	<0.10
	SWM22	8.19	252	0.002	<0.001	0.012	0.015	<0.001	<0.0001	0.002	<0.03	0.08	<0.1
	SWM23	7.41	100	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.08	<0.05	<0.1
	SWM6	8.29	252	0.006	<0.001	0.021	<0.005	<0.001	<0.0001	0.012	<0.03	0.12	<0.1
	SWM4	8.29	466	0.003	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.04	<0.05	<0.1
	SWM24	8.25	251	0.037	<0.001	0.002	0.014	<0.001	<0.0001	<0.001	0.03	<0.05	<0.1
	SWM11	7.65	73	<0.001	0.001	<0.001	0.039	0.003	<0.0001	<0.001	0.08	<0.05	<0.1
	KB2	7.62	69	<0.001	0.002	<0.001	0.021	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB3	7.8	103	<0.001	<0.001	<0.001	0.033	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
26/03/2013	KB2	7.31	49	<0.001	<0.001	<0.001	*	<0.001	<0.0001	<0.001	*	*	*
	SWM22	7.96	459	0.002	<0.001	0.012	*	0.001	<0.0001	0.009	*	*	*

	SWM11	7.32	51	<0.001	<0.001	<0.001	*	<0.0010	<0.0001	<0.001	*	*	*
27/03/2013	KB13	7.46	49	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM22	8	272	0.002	<0.001	0.013	<0.005	<0.001	<0.0001	0.01	<0.03	0.16	<0.10
	SWM23	7.23	94	0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.04	<0.05	<0.10
	SWM6	8.1	358	0.008	<0.001	0.03	<0.005	<0.001	<0.0001	0.037	0.05	0.68	<0.10
	SWM4	8.09	520	0.006	0.002	0.002	0.006	0.002	<0.0001	0.003	<0.03	0.08	<0.10
	SWM24	8.06	290	0.018	<0.001	0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM11	7.42	61	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB2	7.32	57	<0.001	0.001	<0.001	0.006	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB3	7.64	93	<0.001	0.002	<0.001	0.01	0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
30/04/2013	KB13	7.6	64	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM22	8.08	303	0.003	<0.001	0.01	<0.005	0.001	<0.0001	0.007	<0.03	<0.05	<0.10
	SWM23	7.46	83	0.001	<0.001	0.001	0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM6	8.15	372	0.007	0.001	0.023	0.008	<0.001	<0.0001	0.028	0.04	0.68	<0.10
	SWM4	8.18	727	0.006	<0.001	<0.001	<0.005	<0.001	<0.0001	0.006	<0.03	<0.05	<0.10
	SWM24	8.05	274	0.017	0.002	<0.001	0.008	<0.001	<0.0001	<0.001	<0.03	<0.06	<0.10
	SWM11	7.48	62	<0.001	0.017	<0.001	0.069	0.005	<0.0001	<0.001	<0.04	<0.05	<0.10
	KB2	7.88	43	<0.001	<0.001	<0.001	<0.005	0.002	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB3	7.72	104	<0.001	0.003	<0.001	0.009	0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
30/05/2013	KB13	*	62	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM22	*	469	0.007	<0.001	0.011	<0.005	<0.001	<0.0001	0.016	<0.03	0.17	0.14
	SWM23	*	122	0.002	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM6	*	433	0.007	<0.001	0.032	<0.005	0.002	<0.0001	0.058	<0.03	1.34	0.21
	SWM4	*	1360	0.008	<0.001	<0.001	<0.005	<0.001	<0.0001	0.019	<0.03	0.42	0.17
	SWM24	*	290	0.017	0.004	0.001	0.006	0.003	<0.0001	0.001	<0.03	<0.05	<0.10
	SWM11	*	72	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB2	*	*	*	*	*	*	*	*	*	*	*	*
	KB3	*	*	*	*	*	*	*	*	*	*	*	*
25/06/2013	KB13	*	64	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM22	*	597	0.012	<0.001	0.013	0.007	<0.001	<0.0001	0.021	<0.03	0.32	<0.10
	SWM23	*	108	0.006	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10

	SWM6	*	451	0.005	<0.001	0.034	<0.005	<0.001	<0.0001	0.078	<0.03	1.45	0.27
	SWM4	*	1290	0.008	<0.001	<0.001	<0.005	0.002	<0.0001	0.024	<0.03	0.43	<0.10
	SWM24	*	286	0.028	<0.001	0.001	<0.005	<0.001	<0.0001	0.002	0.03	<0.05	<0.10
	SWM11	*	78	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	0.03	<0.05	<0.10
	KB2	*	61	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB3	*	115	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
23/07/2013	KB13	*	79	<0.001	<0.001	<0.001	<0.005	0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	SWM22	*	1020	0.048	0.002	0.037	0.006	0.002	<0.0001	0.04	0.04	0.79	<0.10
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	*	440	0.008	<0.001	0.044	<0.005	<0.001	<0.0001	0.086	0.03	1.43	0.33
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	*	304	0.02	<0.001	0.001	<0.005	<0.001	<0.0001	0.001	<0.03	<0.05	<0.10
	SWM11	*	77	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB2	*	99	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	KB3	*	161	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
14/08/2013	KB13	*	160	<0.001	0.007	<0.001	0.016	0.003	<0.0001	<0.001	*	*	*
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	*	527	0.01	<0.001	0.049	<0.005	0.002	<0.0001	0.107	*	*	*
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	*	373	0.016	0.004	0.001	0.015	<0.001	<0.0001	<0.001	*	*	*
	SWM11	*	123	<0.001	<0.001	<0.001	<0.005	0.001	<0.0001	<0.001	*	*	*
	KB2	*	153	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	*	*	*
	KB3	*	183	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	*	*	*
28/02/2014	KB3	*	98	<0.001	<0.001	<0.001	0.01	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB13	*	64	<0.001	0.001	<0.001	<0.005	0.001	<0.0001	<0.001	0.12	<0.05	<0.1
	SWM22	*	127	0.002	0.003	0.003	0.014	0.003	<0.0001	<0.001	<0.05	<0.06	<0.13
	SWM6	*	180	0.005	<0.001	0.008	<0.005	<0.001	<0.0001	0.003	0.08	<0.1	<0.2
	SWM4	*	151	0.002	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.07	<0.14
	SWM24	*	284	0.024	0.012	<0.001	<0.005	0.001	<0.0001	<0.001	<0.05	<0.16	<0.31
	SWM11	*	75	0.001	<0.001	<0.001	<0.001	<0.005	<0.0001	<0.0001	<0.05	<0.05	<0.1
	KB2	*	60	<0.001	0.001	<0.001	<0.005	0.001	<0.0001	<0.001	<0.05	<0.05	<0.1

	SWM23	*	67	0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
22/04/2014	KB3	*	80	0.001	0.002	<0.001	0.006	0.004	<0.0001	<0.001	*	*	*
	KB13	*	45	<0.001	0.001	<0.001	0.006	<0.001	<0.0001	<0.001	*	*	*
	SWM22	*	132	0.002	0.001	0.003	<0.005	<0.001	<0.0001	<0.001	*	*	*
	SWM6	*	233	0.008	0.007	0.006	0.02	0.004	<0.0001	0.008	*	*	*
	SWM4	*	262	0.002	0.003	<0.001	0.012	0.001	<0.0001	<0.001	*	*	*
	SWM24	*	294	0.021	<0.001	0.001	<0.005	<0.001	<0.0001	<0.001	*	*	*
	SWM11	*	69	0.002	0.001	<0.001	<0.005	0.002	<0.0001	<0.001	*	*	*
	KB2	*	40	<0.001	0.002	<0.001	<0.005	0.002	<0.0001	<0.001	*	*	*
	SWM23	*	59	0.002	0.002	<0.001	0.007	0.002	<0.0001	<0.001	*	*	*
18/06/2014	KB3	*	121	<0.001	0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.10
	KB13	*	61	<0.001	0.002	<0.001	0.02	0.002	<0.0001	<0.001	<0.05	<0.05	<0.10
	SWM22	*	224	0.001	<0.001	0.004	<0.005	<0.001	<0.0001	0.003	<0.05	0.09	<0.10
	SWM6	*	395	0.004	0.001	0.014	<0.005	0.003	<0.0001	0.035	<0.05	0.9	0.33
	SWM4	*	382	0.002	0.002	<0.001	0.014	0.003	<0.0001	<0.001	<0.05	<0.05	<0.10
	SWM24	*	303	0.015	<0.001	0.001	0.01	0.001	<0.0001	0.001	<0.05	<0.05	<0.10
	SWM11	*	65	<0.001	0.002	<0.001	0.022	0.006	<0.0001	<0.001	<0.05	<0.05	<0.10
	KB2	*	53	<0.001	<0.001	<0.001	<0.005	0.003	<0.0001	<0.001	<0.05	<0.05	<0.10
	SWM23	*	97	0.001	0.008	<0.001	0.019	0.002	<0.0001	<0.001	<0.05	<0.05	<0.10
3/09/2014	KB3	*	102	<0.001	<0.001	<0.001	<0.005	0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB13	*	85	<0.001	<0.001	<0.001	0.148	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	*	1500	0.01	0.002	<0.001	0.015	0.004	<0.0001	0.019	<0.05	0.2	0.24
	SWM24	*	295	0.033	0.007	<0.001	0.022	0.005	<0.0001	0.001	<0.05	<0.05	<0.1
	SWM11	*	66	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB2	*	71	<0.001	<0.001	<0.001	<0.005	0.003	<0.0001	<0.001	<0.05	<0.05	<0.1
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
17/10/2014	KB3	*	166	0.002	0.002	<0.001	0.022	0.006	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB13	*	86	<0.001	<0.001	<0.001	<0.005	0.006	<0.0001	<0.001	<0.05	<0.05	<0.1
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry

	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	*	281	0.023	0.005	<0.001	0.008	0.004	<0.0001	<0.001	0.06±0.011	<0.09	<0.18
	SWM11	*	91	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB2	*	108	<0.001	<0.001	<0.001	0.009	0.002	<0.0001	<0.001	<0.05	<0.05	<0.1
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
12/12/2014	KB3	*	286	0.002	0.008	<0.001	0.012	0.006	<0.0001	<0.001	0.06	0.06	<0.1
	KB13	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	*	433	4.39	0.036	0.003	0.28	0.054	<0.0001	0.008	0.47	0.47	0.84
	SWM11	*	110	0.004	0.003	<0.001	<0.005	0.003	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB2	*	104	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
27/02/2015	KB3	*	132	0.002	0.002	<0.001	0.012	0.004	<0.001	<0.001	<0.05	<0.05	<0.1
	KB13	*	77	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.05	<0.05	<0.1
	SWM22	*	194	0.004	<0.001	0.009	<0.005	0.006	<0.001	0.001	<0.05	<0.05	<0.1
	SWM6	*	243	0.033	0.002	0.022	0.012	0.022	<0.001	0.019	0.18	0.49	0.16
	SWM4	*	262	0.005	0.001	<0.001	0.012	0.005	<0.001	<0.001	0.1	<0.05	<0.1
	SWM24	*	366	0.016	<0.001	0.002	<0.005	0.003	<0.001	0.003	<0.05	0.1	<0.1
	SWM11	*	75	<0.001	0.002	<0.001	0.022	0.013	<0.001	<0.001	0.07	<0.05	<0.1
	KB2	*	74	<0.001	<0.001	<0.001	0.009	0.002	<0.001	<0.001	0.05	<0.05	<0.1
	SWM23	*	89	0.002	0.005	<0.001	<0.005	<0.001	<0.001	<0.001	<0.05	<0.05	<0.1
29/05/2015	KB3	*	303	0.001	0.002	<0.001	0.009	0.007	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB13	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	*	398	0.007	<0.001	0.001	<0.005	<0.001	<0.0001	0.005	<0.05	0.14 ±0.026	<0.1
	SWM11	*	115	0.001	0.002	<0.001	<0.005	0.008	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB2	*	104	<0.001	<0.001	<0.001	<0.005	0.004	<0.0001	<0.001	<0.05	<0.05	<0.1

	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
12/08/2015	KB3	*	394	0.011	0.002	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB13	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	*	363	0.011	0.002	0.001	0.008	<0.001	<0.0001	0.003	<0.03	<0.05	<0.1
	SWM11	*	156	0.002	0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	KB2	*	142	<0.001	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.1
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
15/10/2015	KB3	7.19	442	0.001	0.002	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB13	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM22	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM24	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	SWM11	8.02	223	0.002	<0.001	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB2	8.47	193	0.001	<0.001	<0.001	<0.0050	0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	SWM23	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
18/12/2015	KB3	*	*	0.002	0.002	<0.001	<0.005	<0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	KB2	*	*	0.003	0.002	<0.001	<0.005	0.001	<0.0001	<0.001	<0.05	<0.05	<0.1
	SWM11	*	*	0.009	0.002	0.002	<0.005	0.002	<0.0001	<0.001	<0.005	<0.05	<0.1

Date	Site	pH	TDS 500mg/L	As 0.007mg/L	Cu 1.0mg/L	Mo 0.05mg/L	Zn 3.0mg/L	Pb 0.01mg/L	Hg 0.001mg/L	Mobile U 0.02mg/L	RA-226 0.5Bq/L	Gross alpha 0.1Bq/L	Gross beta 0.5Bq/L
EA Conditions 22/12/2010	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2		604	0.015	0.013	0.001	0.033	0.016	<0.0001	0.004	<0.03	<0.17	0.55
	GWM16		250	0.01	0.004	0.001	0.024	0.006	<0.0001	0.001	0.14	0.11	0.27
	GWM6		722	0.009	0.002	<0.001	0.021	0.002	<0.0001	<0.001	0.05	<0.1	<0.1
29/01/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP US	8.09	376	0.032	0.006		0.027	0.013	<0.0001	0.003	<0.06	0.66	0.59
	BL SP DS2	7.46	504	0.036	0.004		0.018	0.008	<0.0001	0.002	<0.06	0.19	0.3
	GWM6	7.27	740	0.038	0.02		0.319	0.094	<0.0001	0.002	<0.06	<0.13	<0.1
	GWM16	7.49	135	0.009	0.002		0.016	0.003	<0.0001	<0.001	<0.06	0.2	0.13
11/03/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	8.13	575	0.02	0.001	<0.001	0.007	<0.001	<0.0001	0.001		<0.1	0.19
	BL SP US	7.98	3020	0.002	0.006	<0.001	0.017	0.004	<0.0001	0.017		0.76	0.53
	GWM6	8.19	759	0.014	0.003	<0.001	0.02	0.004	<0.0001	<0.001		<0.11	0.1
	GWM16	7.43	136	0.01	<0.001	<0.001	0.015	0.002	<0.0001	<0.001		0.08	0.13
30/04/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.44	832	0.013	0.011	<0.001	0.076	0.022	<0.0001	0.005	<0.03	0.62	0.41
	BL SP US	7.33	3920	0.006	0.002	<0.001	0.019	0.003	<0.0001	0.012	0.06	<0.62	<0.1
	GWM6	7.12	190	0.017	0.002	0.001	0.127	0.009	<0.0001	<0.001	<0.03	<0.11	0.11
	GWM16	7.85	760	0.01	0.002	<0.001	0.014	0.01	<0.0001	<0.001	0.03	<0.12	0.1
26/05/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.19	1030	0.036	0.005	<0.001	0.034	0.005	<0.0001	0.003	<0.03	1.09	1.7
	BL SP US	7.12	4160	0.006	0.002	<0.001	0.01	0.002	<0.0001	0.008	0.06	<0.55	<0.1
	GWM6	7.83	702	0.01	<0.001	<0.001	0.01	0.002	<0.0001	<0.001	<0.03	<0.09	0.11
	GWM16	7.15	201	0.027	0.001	0.002	0.016	0.001	<0.0001	<0.001	<0.03	<0.08	<0.1
31/08/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2		4300	0.01	0.002	<0.001	0.006	0.002	<0.0001	0.003	0.07	<0.84	<0.1
	BL SP US		1160	0.056	0.02	<0.001	0.089	0.038	<0.0001	0.005	0.07	<0.25	0.2
	GWM6		751	0.01	0.003	<0.001	0.008	0.009	<0.0001	<0.001	0.05	<0.13	<0.1
	GWM16		438	0.034	0.004	0.004	0.038	0.004	<0.0001	<0.001	<0.03	<0.28	0.17
30/09/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.21	1110	0.004	0.001	<0.001	0.006	<0.001	<0.0001	0.003	0.03	<0.41	<0.1
	BL SP US	7.04	4440	0.028	<0.001	0.001	<0.005	<0.001	<0.0001	0.001	0.07	<1.32	<0.1

	GWM6	7.54	729	0.012	0.001	<0.001	0.015	<0.001	<0.0001	<0.001	<0.04	<0.13	0.15
	GWM16	7.37	522	0.031	0.002	0.004	0.032	0.003	<0.0001	<0.001	<0.03	0.37	0.56
23/10/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7	1200	0.053	0.012	<0.001	0.055	0.022	<0.0001	0.004	0.03	<0.38	0.87
	BL SP US	7.13	4660	0.009	0.008	<0.001	0.016	0.01	<0.0001	0.004	<0.04	<0.6	<0.1
	GWM6	7.67	757	0.014	0.002	<0.001	0.016	0.003	<0.0001	<0.001	<0.04	<0.11	<0.1
	GWM16	7.26	559	0.025	0.003	0.003	0.027	0.004	<0.0001	<0.001	<0.04	0.84	0.32
12/11/2011	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.37	1290	0.062	0.006	<0.001	0.026	0.009	<0.0001	0.004	0.04	<0.3	0.25
	BL SP US	7.27	4430	0.01	0.002	<0.001	0.006	0.001	<0.0001	0.003	0.08	1.74	1.07
	GWM6	7.75	815	0.018	0.002	<0.001	0.016	0.001	<0.0001	<0.001	0.04	<0.05	<0.01
	GWM16	7.44	706	0.025	0.003	0.003	0.047	0.004	<0.0001	<0.001	<0.04	0.26	0.46
6/01/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.65	1410	0.056	0.006	0.001	0.094	0.002	<0.0001	0.001	0.13	<0.19	0.22
	BL SP US	7.43	5080	0.007	0.002	<0.001	<0.005	0.002	<0.0001	0.01	0.09	0.91	0.46
	GWM6	8.04	798	0.015	0.002	<0.001	0.008	0.004	<0.0001	<0.001	0.1	<0.05	0.15
	GWM16	7.36	529	0.022	0.004	0.002	0.022	0.007	<0.0001	0.002	<0.06	0.13	0.12
16/02/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.65	290	0.018	0.002	0.001	0.012	0.004	<0.0001	<0.001	<0.03	1.17	0.4
	BL SP US	7.37	776	0.006	0.026	<0.001	0.077	0.05	<0.0001	0.002	<0.03	0.13	0.84
	GWM6	8.09	798	0.014	0.002	<0.001	0.02	0.004	<0.0001	<0.001	<0.03	<0.09	<0.1
	GWM16	7.08	240	0.011	0.002	<0.001	0.016	0.004	<0.0001	<0.001	0.06	<0.05	0.11
20/04/2012	BL SP DS1	7.31	1230	0.005	0.009	<0.001	0.03	0.016	<0.0001	0.003	ugh water for sample		
	BL SP DS2	7.34	550	0.004	<0.001	<0.001	<0.005	<0.001	<0.0001	0.002	<0.03	<0.05	<0.1
	BL SP US	7.28	1260	0.003	<0.001	<0.001	0.014	0.002	<0.0001	0.001	0.05	0.08	0.3
	GWM6	7.92	830	0.008	<0.001	<0.001	0.024	0.008	<0.0001	<0.001	0.03	<0.05	<0.1
	GWM16	7.22	214	0.015	<0.001	0.001	0.01	0.003	<0.0001	<0.001	0.04	<0.05	<0.1
17/05/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.18	692	0.023	0.012	<0.001	0.053	0.025	<0.0001	0.003	0.03	<0.05	0.27
	BL SP US	7.15	1520	0.007	<0.001	<0.001	0.006	0.001	<0.0001	0.001	<0.03	<0.18	0.1
	GWM6	7.94	814	0.012	0.003	0.002	0.026	0.016	<0.0001	<0.001	0.03	<0.05	<0.1
	GWM16	7.18	352	0.028	0.004	0.003	0.031	0.009	<0.0001	<0.001	<0.03	0.16	0.19
30/06/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry

	BL SP DS2	7.59	910	0.027	0.008	<0.001	0.028	0.015	<0.0001	0.002	0.05	0.07	0.24
	BL SP US	7.54	1670	0.007	<0.001	<0.001	0.008	<0.001	<0.0001	<0.001	0.05	<0.08	<0.1
	GWM6	8.3	830	0.007	0.003	0.001	0.024	0.006	<0.0001	<0.001	<0.03	<0.05	<0.1
	GWM16	7.69	620	0.025	0.004	0.003	0.038	0.005	<0.0001	<0.001	0.04	<0.13	0.15
26/07/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.34	421	0.018	<0.001	<0.001	<0.005	<0.001	<0.0001	0.001	dry	dry	dry
	BL SP US	7.15	1720	0.009	0.001	<0.001	0.009	0.001	<0.0001	0.001			
	GWM6	7.77	761	0.008	0.001	<0.001	0.016	0.005	<0.0001	<0.001			
	GWM16	6.94	465	0.014	0.001	0.002	0.023	0.008	<0.0001	0.001			
19/09/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.33	1040	0.017	0.003	<0.001	0.009	0.007	<0.0001	<0.001	<0.04	<0.10	0.3
	BL SP US	7.18	2220	0.004	0.004	<0.001	0.012	0.007	<0.0001	<0.001	0.05	<0.19	0.31
	GWM 6	7.63	783	0.008	<0.001	<0.001	0.009	0.004	<0.0001	<0.001	<0.03	<0.05	<0.10
	GWM 16	7.02	561	0.017	0.006	0.002	0.021	0.006	<0.0001	0.002	<0.04	<0.06	0.11
31/10/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	1100	0.067	0.001	0.002	0.014	<0.001	<0.0001	<0.001	0.05	<0.18	<0.1	
	BL SP US	1880	0.008	0.041	<0.001	0.155	0.08	<0.0001	0.012	0.08	0.85	0.8	
	GWM6	1220	0.016	0.018	<0.001	0.074	0.035	<0.0001	0.005	0.04	<0.08	0.2	
	GWM16	680	0.018	0.004	0.002	0.014	0.004	<0.0001	0.002	<0.03	0.17	0.12	
11/12/2012	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.59	1150	0.069	0.011	<0.001	0.049	0.028	<0.0001	0.006	0.06	<0.42	<0.1
	BL SP US	-	-	0.032	0.054	<0.001	0.276	0.679	<0.0001	0.038	* insufficient water to sample		
	GWM6	7.46	638	0.022	0.01	0.002	0.839	0.033	<0.0001	0.004	0.32	<0.13	0.43
	GWM16	7.93	774	0.008	<0.001	<0.001	0.008	<0.001	<0.0001	<0.001	0.07	<0.05	<0.1
15/01/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.44	1240	0.046	0.004	0.001	0.028	0.003	<0.0001	<0.001	<0.03	<1.43	<0.1
	BL SP US	7.3	2000	0.011	0.019	<0.001	0.157	0.134	<0.0001	0.019	* insufficient water to sample		
	GWM6	7.97	774	0.007	0.002	<0.001	0.037	0.005	<0.0001	<0.001	0.03	<0.05	<0.1
	GWM16	7.34	1580	0.022	0.011	0.002	0.629	0.039	<0.0001	0.004	0.13	0.27	0.58
22/02/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.84	507	0.057	0.003	<0.001	0.017	0.006	<0.0001	<0.001	0.32	<0.11	0.15
	BL SP US	7.04	568	0.014	0.055	0.002	0.329	0.103	0.0001	0.011	0.18	0.36	0.75
	GWM6	8.22	800	0.108	0.016	0.002	0.059	0.004	<0.0001	<0.001	0.09	<0.05	<0.1
	GWM16	6.7	3310	0.068	0.072	0.003	2.69	0.239	<0.0001	0.018	0.78	0.45	1.03

27/03/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.55	704	0.063	0.003	0.001	0.018	0.006	<0.0001	0.001	<0.03	0.49	0.44
	BL SP US	7.46	2700	0.017	0.071	<0.001	1.73	0.161	<0.0001	0.015	0.23	1.3	1.48
	GWM6	7.91	706	0.055	0.001	<0.001	0.027	0.007	<0.0001	<0.001	0.03	<0.05	<0.10
	GWM16	7.15	3820	0.099	0.117	0.003	4.1	0.353	<0.0001	0.026	0.27	1.02	1.12
30/04/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2	7.53	995	0.015	0.002	<0.001	0.014	0.001	<0.0001	<0.001	<0.03	<0.90	<0.10
	BL SP US	NT	NT	0.003	0.002	<0.001	<0.005	0.006	<0.0001	0.003			
	GWM6	7.98	731	0.021	0.003	<0.001	0.036	0.005	<0.0001	<0.001	<0.03	<0.05	<0.10
	GWM16	7.25	709	0.01	0.004	<0.001	0.027	0.006	<0.0001	<0.001	<0.03	0.2	0.25
30/05/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2		981	0.092	0.011	0.001	0.063	0.02	<0.0001	0.003	0.04	<0.25	0.24
	BL SP US		1640	0.053	0.136	0.001	0.614	0.279	<0.0001	0.055			
	GWM6		715	0.015	0.002	<0.001	0.018	0.01	<0.0001	<0.001	<0.03	<0.05	0.1
	GWM16		5050	0.053	0.063	0.003	2.41	0.199	<0.0001	0.009			
25/06/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2		1090	0.085	0.002	0.003	0.023	0.009	<0.0001	0.016	0.06	0.84	0.24
	BL SP US			0.043	0.106	<0.001	0.452	0.232	<0.0001	0.045			
	GWM6		753	0.066	0.001	0.002	0.015	0.003	<0.0001	<0.001	<0.03	<0.05	<0.10
	GWM16		12900	0.271	0.356	0.011	11.3	0.981	<0.0005	0.067			
23/07/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2		1130	0.104	0.003	0.002	0.019	0.002	<0.0001	0.007	0.03	2.43	0.12
	BL SP US	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	GWM6		766	0.033	0.001	0.001	0.011	<0.001	<0.0001	<0.001	<0.03	<0.05	<0.10
	GWM16	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
14/08/2013	BL SP DS1	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	BL SP DS2		1080	0.107	0.014	0.002	0.258	0.072	<0.0001	0.004			
	BL SP US	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
	GWM6		770	0.022	0.003	<0.001	0.013	0.002	<0.0001	<0.001			
	GWM16	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
28/02/2014	BL SP DS1	Dry											
	BL SP DS 2		633	0.082	0.012	0.001	0.059	0.013	<0.0001	0.002	0.06	<0.42	<0.83
	BL SP US		1220	0.007	0.02	<0.001	0.087	0.026	<0.0001	0.003	0.1	<0.25	<0.5

	GWM16		212	0.008	0.003	<0.001	0.014	0.005	<0.0001	<0.001	<0.05	<0.05	0.17
	GWM6		736	0.014	0.005	<0.001	0.037	0.009	<0.0001	<0.001	<0.05	<0.07	<0.14
22/04/2014	BL SP DS1	Dry											
	BL SP DS 2		931	0.051	0.009	<0.001	0.027	0.009	<0.0001	0.002			
	BL SP US		1880	0.007	0.018	<0.001	0.046	0.016	<0.0001	0.002			
	GWM16		120	0.011	0.003	<0.001	0.018	0.008	<0.0001	<0.001			
	GWM6		788	0.009	0.002	<0.001	0.018	0.008	<0.0001	<0.001			
10/07/2014	BL SP DS1	Dry											
	BL SP US		2940	0.026	0.29	<0.001	0.719	0.455	<0.0001	0.055	no result	1.32	6.53
	GWM16		448	0.019	0.005	0.002	0.061	0.006	<0.0001	<0.001	<0.05	<0.05	<0.10
	GWM6		699	0.01	0.004	<0.001	0.027	0.005	<0.0001	<0.001	<0.05	0.05	<0.10
23/09/2014	BL SP DS1	Dry											
	BL SP US	Dry											
	GWM16		1470	0.033	0.029	0.008	1.31	0.053	<0.0001	0.003	0.26	0.3	0.35
	GWM6		718	0.012	0.004	<0.001	0.049	0.007	<0.0001	<0.001	<0.05	0.07	<0.1
17/10/2014	BL SP DS1	Dry											
	BL SP DS 2		1590	0.142	0.007	0.002	0.025	0.006	<0.0001	0.002	<0.05	0.15±0.027	0.25
	BL SP US	Dry											
	GWM16		1960	0.039	0.055	0.005	4.9	0.175	<0.0001	0.008	0.68±0.005	27.4±1.37	29.4±1.61
	GWM6		736	0.012	0.009	<0.001	0.038	0.005	<0.0001	<0.001	<0.05	<0.05	0.1
12/10/2014	BL SP DS1	Dry											
	BL SP DS 2		1490	0.163	0.005	0.002	0.034	0.003	<0.0001	<0.001	0.13	0.17	0.18
	BL SP US	Dry											
	GWM16	Dry											
	GWM6		720	0.012	0.005	<0.001	0.068	0.004	<0.0001	<0.001	0.06	0.06	<0.1
27/02/2015	BL SP DS1	Dry											
	BL SP DS 2		1800	0.134	0.008	0.002	0.056	0.018	<0.001	0.003	<0.05	0.14	0.11
	BL SP US	Dry											
	GWM16		3270	0.044	0.071	0.003	1.51	0.145	<0.001	0.009	0.15	3.9	4.59
	GWM6		749	0.007	0.004	<0.001	0.042	0.021	<0.001	<0.001	<0.05	0.07	<0.1
29/06/2015	BL SP DS1	Dry											
	BL SP US	Dry											
	GWM16	Dry											

	GWM6		716	0.056	0.007	0.002	0.162	0.048	<0.0001	0.001	<0.05	0.06±0.018	<0.1
12/08/2015	BL SP DS1	Dry											
	BL SP US	Dry											
	GWM16	Dry											
	GWM6		736	0.007	0.002	<0.001	0.027	0.002	<0.0001	<0.001	<0.03	<0.05	<0.10
15/10/2015	BL SP DS1	Dry											
	BL SP DS 2	6.84	1270	0.105	0.003	0.001	0.02	0.004	<0.0001	0.004	<0.05	0.18 +/- 0.03	0.27 +/-0.09
	BL SP US	Dry											
	GWM16	Dry											
	GWM6	6.64	787	0.113	0.039	0.004	7.22	0.233	<0.0001	0.003	<0.05	<0.05	0.14+/-0.07
18/12/2015	BL SP DS1												
	BL SP DS 2		2760	0.272	0.044	0.003	0.241	0.113	0.241	0.017	0.11 ±0.019	0.57 ±0.052	0.26 ±0.09
	BL SP US												
	GWM16												
	GWM6		224	0.125	0.006	0.004	0.297	0.034	<0.0001	<0.001	<0.05	0.28 ±0.036	0.28 ±0.08

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I essentially agree with the assessment, but am uncertain whether all the contamination comes from surface tailings. Could a minor come from groundwater accessing underground workings, as air would probably penetrate these as well. However, I agree that there is no doubt that the contamination is derived from exposed ore.

Where do we go from here? Cattle, wildlife and people using creeks (especially Keelbottom Creek) could be affected. Keelbottom Creek should be regularly monitored. Similarly, the Burdekin River, for which Keelbottom Creek is a tributary, should be regularly monitored for radiation and relevant heavy metals in case contamination occurs subsequent to particular weather events.

Yours sincerely  
Mike Rubenach

(Dr Mike Rubenach, retired Senior Lecturer, Geology, JCU)

6/8/2016

Released under RTI/ATIA

Subject: Sch 4 CTPI \_ ^\_sent^ \_ ^\_you^ \_ a ^\_new^ \_ ^\_message^ \_

From: messaging-digest-noreply@linkedin.com

To: mangocube6@yahoo.co.uk

Date: Monday, 5 September 2016 12:33:06 PM AEST



Mark Bailey 

You have unread messages from Sch 4 CTPI



Sch 4 CTPI

Hi Mark

Thanks for connecting. I hope all is going well. Let me know if you ever wish to catch up and chat about the water sector.

Best Wishes

Sch 4 CTPI

Reply



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This email was intended for Mark Bailey (MP for State Seat of Yeerongpilly, Minister for Main Roads, Road Safety, Ports, Energy, Biofuels, Water Supply).

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**Subject:** Re: EHP

**From:** David Sewell (david.sewell) Sch 4 CTPI

**To:** mangocube6@yahoo.co.uk;

**Date:** Wednesday, 14 September 2016, 7:03

Thanks Mark

Sent from my iPhone

- > On 14 Sep 2016, at 6:16 AM, Mark Bailey <mangocube6@yahoo.co.uk> wrote:
- >
- > Hey Dave,
- >
- > Don't have a formal response just yet but our office has been working with EHP and should have something soon, hopefully today. M
- >
- > Sent from my iPhone

Released under RTI - DTMR

Page 77 redacted for the following reason:

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Exempt Sch.3(6)(c)(i) Infringe the privileges of Parliament

Released under RTI - DTMR

**Subject:** Ministers response

**From:** David Sewell (david.sewell) Sch 4 CTPI

**To:** mangocube6@yahoo.co.uk;

**Date:** Saturday, 17 September 2016, 6:31

Hi Mark,

Thanks for getting on to our issue. We were extremely disappointed in the response from the Environment Ministers office (attached) which failed to answer the central question about what the government and the leaseholder have done to stop the pollution.

In addition the question regarding advice to councils affected by the pollution in relation to water supply was unanswered. As Minister for water do you have any thing to add?

Also. I can't say I'm filled with confidence that your staff failed to bring this matter to your attention. We are now working closely with NQCC and seek to gain answers to which we are entitled.

Regards,  
Dave Sewell

---

## Attachments

- ministers response 16.9.16.pdf (285.65 KB)



Hon Dr Steven Miles MP  
 Minister for Environment and Heritage Protection and  
 Minister for National Parks and the Great Barrier Reef

Ref CTS 20161/16

Level 13  
 400 George Street Brisbane Qld 4000  
 GPO Box 2454 Brisbane  
 Queensland 4001 Australia  
 Telephone +61 7 3719 7330  
 Email environment@ministerial.qld.gov.au

16 SEP 2016

Mr David Sewell  
 Spokesperson  
 Citizens Against Minina Ben Lomond

Sch 4 CTPI



Dear Mr Sewell

Thank you for your emails of 8 August 2016 concerning the Ben Lomond mine site. I am responding on the Minister's behalf.

The Department of Environment and Heritage Protection has responded to matters of non-compliance and has required the Environmental Authority (EA) holder to undertake an Environmental Evaluation (EE) in relation to contaminant sources at Ben Lomond. The EE did identify both natural and mining activity sources of mineralisation.

I can advise you that the findings of the EE, combined with reporting that the EA holder has provided to the department as a requirement of the conditions of the EA, are now the basis for further compliance action at the Ben Lomond site. Given that this is an active compliance matter, the department is not at liberty to comment further. I can assure you that departmental officers continue to monitor compliance with the statutory requirements and ensure that measures are in place to protect the environmental values.

I note your concern with regard to the EA and the 2015 amendment. I have been advised that the 2015 amendment was a minor administrative amendment and did not change any of the existing conditions contained in the EA. The description of the Environmentally Relevant Activity was amended to reflect the only activity which is authorised on the site being exploration. Mining, ore extraction and mineral processing continue to be unauthorised on this site.

Should you have any further enquiries, please contact Mr Scott Sullivan, Program Manager, Compliance of the Department of Environment and Heritage Protection on telephone (07) 4722 5200.

Yours sincerely

Sch 4 CTPI



Philip Halton  
 Chief of Staff

*The Department will be contacting you directly when there is a further development*

**Subject:** Ben Lomond  
**From:** David Sewell (david.sewell@ehp.qld.gov.au) [Sch 4 CTPI]  
**To:** EHPMinister.Corro@ehp.qld.gov.au;  
**Cc:** sdnrm@ministerial.qld.gov.au; energyandwatersupply@ministerial.qld.gov.au;  
**Date:** Sunday, 18 September 2016, 20:50

Dear Minister Miles,

Thank you for your response to our letter of 8/08/2016.

Let me start by emphasizing the high level of concern that we, as local residents, have about the serious pollution of nearby waterways with heavy metals and radioactive compounds for many years by the Ben Lomond leaseholder, which DNRM and DEHP have allowed to continue. For us, this situation is urgent, and constitutes a threat to public health.

Therefore we request that you release the recent Environmental Evaluation in relation to contaminant sources at Ben Lomond to us, the public affected, and tell us what constitutes your department's "further compliance action".

We also request that you explain why we should believe your advice that your officers "will continue to monitor compliance with the statutory requirements" given that the serious pollution and ongoing non-compliance took place over five years (and presumably over much or all of the 30 years prior to that, from the original operation of the mine). Given that we asked you directly, your letter provides no indication that DEHP knew of, or did anything about, the more than five years of serious pollution. The evidence is that it took us, the public, to detect the non-compliance and bring it to your attention.

Given the seriousness of the pollution and the utter failure of the existing regulatory regime to prevent it over at least five years (and probably more like 35 years), we feel a civic duty to facilitate a broader public discussion of the issue. Therefore, we intend to publish your response in the Townsville and Brisbane media, where no doubt the public will be able to judge for themselves how serious the Queensland Labor Government is regarding radioactive and heavy metal pollution of a major Queensland waterway.

Should your letter provide adequate responses to our questions, in a timely manner by the end of this week, we will of course transmit these to the public.

Yours sincerely,

David Sewell

Spokesperson for CAMBL Citizens Against Mining Ben Lomond

Sch 4 CTPI

N/R

Sch 4 CTPI

N/R

---

**Attachments**

- Dear Minister Miles.docx (103.94 KB)

Released under RTI - DTMR

Dear Minister Miles,

Thank you for your response to our letter of 8/08/2016.

Let me start by emphasizing the high level of concern that we, as local residents, have about the serious pollution of nearby waterways with heavy metals and radioactive compounds for many years by the Ben Lomond leaseholder, which DNRM and DEHP have allowed to continue. For us, this situation is urgent, and constitutes a threat to public health.

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Should your letter provide adequate responses to our questions, in a timely manner by the end of this week, we will of course transmit these to the public.

Yours sincerely,  
David Sewell  
Spokesperson for CAMBL Citizens Against Mining Ben Lomond

Sch 4 CTPI

N/R

Subject: Re: Ben Lomond  
From: David Sewell (david.sewell [redacted] Sch 4 CTPI)  
To: mangocube6@yahoo.co.uk;  
Date: Monday, 19 September 2016, 7:51

Thanks Mark

Sent from my iPhone

On 19 Sep 2016, at 7:43 AM, Mark Bailey <mangocube6@yahoo.co.uk> wrote:

Hi Dave... Will be discussing both yr emails with my staff today. Mark

Sent from my iPhone

On 18 Sep 2016, at 8:50 PM, David Sewell <david.sewell [redacted] Sch 4 CTPI> wrote:

Dear Minister Miles,

Thank you for your response to our letter of 8/08/2016.

Let me start by emphasizing the high level of concern that we, as local residents, have about the serious pollution of nearby waterways with heavy metals and radioactive compounds for many years by the Ben Lomond leaseholder, which DNRM and DEHP have allowed to continue. For us, this situation is urgent, and constitutes a threat to public health.

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Should your letter provide adequate responses to our questions, in a timely manner by the end of this week, we will of course transmit these to the public.

Yours sincerely,

David Sewell

Spokesperson for CAMBL Citizens Against Mining Ben Lomond

Sch 4 CTPI

N/R

Sch 4 CTPI

N/R

<Dear Minister Miles.docx>

Released under RTI - DTMR

Subject: ^\_Your^\_^\_advert^\_^\_has^\_^\_been^\_^\_approved^\_^\_

From: notification+o=\_2cfsy@facebookmail.com

To: mangocube6@yahoo.co.uk

Date: Tuesday, 20 September 2016, 10:35:25 am AEST



Your advert has been approved

Your advert is approved and should begin delivering shortly. Click the advert name below to manage it or view its performance.



The following advert is approved (1)

View adverts

Account: Mark Bailey > Campaign: Post: "Huge Bruce Highway road safety boost & traffic..." > Advert Set: Post: "Huge Bruce Highway road safety boost & traffic..."

**Boosted post: Post: /MarkBaileyMP/posts/1769720859964270 to your advert's audience**

This message was sent to mangocube6@yahoo.co.uk. If you don't want to receive these emails from Facebook in the future, please unsubscribe.

Facebook, Inc., Attention: Community Support, Menlo Park, CA 94025

Released under RPH - DTMR

Subject: Sch 4 CTPI - ^\_tagged^\_ ^\_you^\_ in a ^\_post^\_ on ^\_Facebook^\_

From: notification+o=\_2cfsy@facebookmail.com

To: mangocube6@yahoo.co.uk

Date: Thursday, 22 September 2016, 5:51:47 pm AEST

facebook

Sch 4 CTPI tagged you and 2 others in a post. You can choose if you want to add it to your Timeline.

Sch 4 CTPI wrote: "Hon Mark Bailey, Minister for TMR visiting Lockhart, we spoke to our Road Gang Supervisor (Solly) about the beach project and also visited the Old Site Road works. Great to see Ryan and Paul (team) taking on some local business opportunities, they're delivery our QRA project to Old Site this year. With support from Council workforce Massey and others!"

Remember: Posts you hide from your Timeline may still appear in News Feed and elsewhere on Facebook.

Learn more about tagging on Facebook.

Review Post

This message was sent to mangocube6@yahoo.co.uk. If you don't want to receive these emails from Facebook in the future, please unsubscribe. Facebook, Inc., Attention: Community Support, Menlo Park, CA 94025

Released under RTI - DMR

**Subject:** Curriculum Vitae  
**From:** Mike Reynolds Sch 4 CTPI  
**To:** mangocube6@yahoo.co.uk;  
**Date:** Sunday, 25 September 2016, 14:03

Good afternoon Mark

I confirm my interest in becoming a Director of the Port of Townsville Corporation. As you may be aware, I have had a significant corporate history and involvement with the Port which would be most useful as the Port continues to grow and face challenging times.

Please find attached my Curriculum Vitae.

Kind regards

Mike Reynolds

---

### Attachments

- Curriculum Vitae Mike Reynolds September 2016.doc (479.50 KB)

Released under RTI - DTMR

# CURRICULUM VITAE

Copyright - access via inspection only

Sch 4 CTPI

N/R

Sch 4 CTPI

Released under RTI - DTMR

Page 89 redacted for the following reason:

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Page 91 redacted for the following reason:

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Page 93 redacted for the following reason:

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Copyright - access via inspection only

Released under RTI - DTMR

Subject: RE: ^\_South^\_ ^\_Australia^\_ ^\_braces^\_ for ^\_storm^\_ that ^\_could^\_ be ^\_most^\_ ^\_severe^\_ in ^\_50^\_ ^\_years^\_

From: Denise.Spinks@ministerial.qld.gov.au

To: mangocube6@yahoo.co.uk

Date: Wednesday, 28 September 2016, 1:17:37 pm AEST

Checked in with Terry

Denise Spinks  
Chief of Staff  
Office of the Minister for Main Roads, Road Safety and Ports  
Minister for Energy, Biofuels and Water Supply

P 07 3719 7300 M N/R  
Capital Hill Building 85 George Street Brisbane QLD 4000  
PO Box 15185 City East QLD 4002

-----Original Message-----

From: Mark Bailey [mailto:mangocube6@yahoo.co.uk]

Sent: Wednesday, 28 September 2016 11:59 AM

To: Denise Spinks <Denise.Spinks@ministerial.qld.gov.au>

Subject: South Australia braces for storm that could be most severe in 50 years

This looks potentially very bad - thinking we should talk to EQ re having power crews on standby if needed in response? M [https://linkprotect.cudasvc.com/url?a=https://www.theguardian.com/australia-news/2016/sep/28/south-australia-braces-for-storm-that-could-be-most-severe-in-50-years%3fCMP%3dshare\\_btn\\_link&c=E,1,EzFN0Wh2LvRI5g0c7kGzDHAWPuU7P\\_G-8MtKuwtuGYqD1n1pDXboHp349mSbMqie8r0JMj2e-X4TvemYzUKEsyST\\_UHW0GBMgihpQ,,&typo=1](https://linkprotect.cudasvc.com/url?a=https://www.theguardian.com/australia-news/2016/sep/28/south-australia-braces-for-storm-that-could-be-most-severe-in-50-years%3fCMP%3dshare_btn_link&c=E,1,EzFN0Wh2LvRI5g0c7kGzDHAWPuU7P_G-8MtKuwtuGYqD1n1pDXboHp349mSbMqie8r0JMj2e-X4TvemYzUKEsyST_UHW0GBMgihpQ,,&typo=1)

Sent from my iPhone

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Please consider the environment before printing this email.

Subject: ^\_Fwd^\_: ^\_Climate^\_ ^\_Council^\_

---

From: Mark.Bailey@ministerial.qld.gov.au

To: mangocube6@yahoo.co.uk

Date: Friday, 30 September 2016, 10:30:31 am AEST

---

Sent from my iPhone

Begin forwarded message:

**From:** "Zoe Russell" <Zoe.Russell@ministerial.qld.gov.au>  
**To:** "Mark Bailey" <Mark.Bailey@ministerial.qld.gov.au>, "Denise Spinks" <Denise.Spinks@ministerial.qld.gov.au>, "Tam van Alphen" <Tam.VanAlphen@ministerial.qld.gov.au>, "Amy Hunter" <Amy.Hunter@ministerial.qld.gov.au>  
**Subject:** Climate Council

Thinking of sharing this vid on Min's FB page. It's a great wrap-up. Any objections?

<https://www.facebook.com/climatecouncil/>

[image1.PNG]

Sent from my iPhone

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 image1.PNG  
233kB

**Subject:** Meeting

**From:** David Sewell [Sch 4 CTPI]

**To:** mangocube6@yahoo.co.uk;  
[Sch 4 CTPI]

**Cc:** [Sch 4 CTPI] bill@laingex.com; [Sch 4 CTPI] office@nqcc.org.au;

**Date:** Friday, 30 September 2016, 18:20

Hi Mark,

Just FYI I have requested through Coralee O'Rourke's office for a meeting with you, the Environment Minister and the Mines for Minister during your visit to Townsville next week. Hoping we'll be able to catch up to discuss the situation.

Sent from my iPhone

Released under RTI - D1MR

**Subject:** Re: south Australian power  
**From:** Paul Lucas <Sch 4 CTPI>  
**To:** mangocube6@yahoo.co.uk;  
**Date:** Sunday, 2 October 2016, 13:15

Just be really careful that they don't end up foisting a new regime on you (ie QLD) that makes our customers pay for network or reliability insurance (eg paying for SA or Vic old coal plant to be available even when you don't need it)

They will:

1. Try and spread costs on QLD and NSW
2. Try and fuck QLD government owned coal plant ( the opposite to what they should do). Swan did that to us previously under Rudd do don't think federal labor will protect you. 3. They'll try and hoodwink you with green rhetoric. Think of one thing in any assessment--> what will do for QLD domestic power prices. That's the political bottom line.

Kind Regards  
Paul Lucas

N/R

On 2 Oct. 2016, at 11:18 am, Mark Bailey <mangocube6@yahoo.co.uk> wrote:

Thx Paul. Def systematic issue for them. M

Sent from my iPhone

On 1 Oct 2016, at 9:20 PM, Paul Lucas <Sch 4 CTPI> wrote:

<https://medium.com/@andynehl/why-did-so-many-of-south-australias-electricity-transmission-towers-collapse-1604702516b1#.p474gceii>

**finally someone writes a bit of sense (putting aside the privatisation red herring)**

**mind you, I suspect those towers were built fit for purpose in an area that would never expect to see even sub-cyclonic winds.**

**And I very much doubt that (in a declining energy load state) that those towers were installed post 1999 when ETSA was privatised.**

**Yours in Network**

Subject: There are two issues the South Australian blackout should make us think about | Tony Wood | Opinion | The Guardian

From: Paul Lucas Sch 4 CTPI

To: mangocube6@yahoo.co.uk;

Date: Monday, 3 October 2016, 12:00

This is the guy you should talk to as I've indicated

[https://www.theguardian.com/commentisfree/2016/sep/30/there-are-two-issues-the-south-australian-blackout-should-make-us-think-about?utm\\_source=esp&utm\\_medium=Email&utm\\_campaign=Politics+AUS&utm\\_term=193080&subid=7983662&CMP=ema\\_792](https://www.theguardian.com/commentisfree/2016/sep/30/there-are-two-issues-the-south-australian-blackout-should-make-us-think-about?utm_source=esp&utm_medium=Email&utm_campaign=Politics+AUS&utm_term=193080&subid=7983662&CMP=ema_792)

Kind Regards  
Paul Lucas

N/R

Released under RTI - DTMR

**Subject:** Re: 20 new jobs for My Job Search

**From:** Paul Lucas [Sch 4 CTPI]

**To:** mangocube6@yahoo.co.uk;

**Date:** Friday, 21 October 2016, 8:28

Quite honestly you guys have so got your fingerprints over energy GOCs and policy that you have to have it work.

If it does you'll be heroes. If not.....

Remember the media shift goal posts on you. The McKinsey Greenhouse Cost Curve illustrates that power generation is far more problematic than emissions reduced in the building and transport sector.

Power prices will go up. But that's not the point. We need cleaner energy. So a narrative that prices won't go up is really dangerous

You are much better off going on another demand side campaign. Be at the forefront of a campaign to ban halogen bulbs and also a new program of led bulb grants for homes.

I'm yet to see a State owned corporation like Powerlink than is more nimble than the private sector.

Look at Cairns Airport (massively overcapitalised under Government ownership - including my time) compared to Gold Coast.

This is a conversation to have another time.

Kind Regards

Paul Lucas

N/R [Redacted]

On 21 Oct. 2016, at 7:50 am, Mark Bailey <mangocube6@yahoo.co.uk> wrote:

Powerlink facing new and vigorous competition from privatised NSW networks in unregulated market so need to refocus to prevent being muscled out. M

Sent from my iPhone

On 21 Oct 2016, at 6:26 AM, Paul Lucas [Sch 4 CTPI] wrote:

Thought you might be interested in this.

Powerlink want a "business development manager"???? Part of a business development team?

They are a regulated business! They are not really able to be entrepreneurial except for perhaps running s bit of fibre along the lightning wires.

[Redacted]

Paul

Begin forwarded message:

**From:** "SEEK JobMail" <jobmail@s.seek.com.au>

**Date:** 21 October 2016 at 1:22:32 am AEST

**To:** Sch 4 CTPI

**Subject:** 20 new jobs for My Job Search



Hi Paul,

Check out **20** new jobs. Update your SEEK profile to get more opportunities tailored for you.

Featured  
Chief Executive Officer-MWAC  
Meelup Management  
Geraldton, Gascoyne & Midwest

Featured  
Manager  
Carers Plus  
Perth

**Director of Marketing, Asia Pacific**  
Cochlear Limited.

**Sydney, Ryde & Macquarie Park**

Use your Consumer and B2B Marketing Leadership experience to drive Marketing excellence across Cochlear APAC



**Australian & New Zealand General Manager -Industrial Automation**  
Roc Consulting

**Sydney**  
\$200,000 - \$250,000 Neg.

GLOBAL LEADER WITHIN INDUSTRIAL AUTOMATION - \$200,000 - \$250,000 SALARY PLUS STANDARD EXTRAS



**General Manager - Business Development**  
Powerlink

**Brisbane, Northern Suburbs**

This is an exciting opportunity to develop and grow Powerlink's newly formed Business Development Group.

## Senior Mining Engineer

Rio Tinto

### Broome & Kimberley

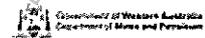
Opportunity to provide technical and operational support for the Underground Mining Department to deliver Business Plan targets

## Regional Inspector of Mines

Department of Mines and Petroleum

**Perth, CBD, Inner & Western Suburbs**  
Remuneration package of up to \$213,580 per annum\*

Inspirational leader with extensive mining experience, accountable for multi-disciplinary teams for regulatory functions and leading practice.



## Principal UG Mining Engineer

Thiess Pty Ltd

**Perth, CBD, Inner & Western Suburbs**

Perth based Principal UG Mining Engineer required. Must have extensive UG Mining experience along with strong technical expertise. Apply Now.

## Chief Executive Officer - Public Sector

Davidson Executive

**Brisbane, CBD & Inner Suburbs**

A unique opportunity exists for an outstanding senior executive to join the Queensland Government's leadership team and drive economic growth.

## Executive General Manager Projects (NSW and QLD)

Transdev Australasia Pty Ltd

**Sydney, CBD, Inner West & Eastern Suburbs**

- Full Time - Based in Pyrmont - Responsible for projects across NSW and QLD

## Supply Chain Leader- Sibelco Australia & New Zealand

Sibelco Australia Limited

**Sydney, North Shore & Northern Beaches**

We are recruiting for a Regional Supply Chain Leader, to be based out of our North Sydney or South Brisbane locations

## Procurement Advisor

Hays Procurement

**Sydney, CBD, Inner West & Eastern Suburbs**



Procurement advisor job available for 6 months in Sydney CBD.

## Analysis Leader, Energy Markets

EnergyAustralia Services Pty Ltd

**Melbourne**, CBD & Inner Suburbs  
Very attractive & competitive annual salary + STIs

Senior level opportunity to join a very well regarded team in the industry



## Chief Operating Officer

Department of Transport and Main Roads

**Brisbane**, CBD & Inner Suburbs

You will lead the PSBA through a commitment to the provision of a high standard of impartial evidence-based advice to the PSBA Board.

## Supply Chain Leader- Sibelco Australia & New Zealand

Sibelco Australia Limited

**Sydney**, North Shore & Northern Beaches

We are recruiting for a Regional Supply Chain Leader, to be based out of our North Sydney or South Brisbane locations

## Boilermaker

Downer EDI Limited

**Geraldton, Gascoyne & Midwest**

Downer EDI Mining is currently seeking an experienced Boilermaker to join the team at Karara

## Mine Production Superintendent

AGL Energy

**Traralgon & La Trobe Valley**

Fantastic opportunity to utilize your senior mine production experience in the southern hemisphere's largest open cut brown coal mine

## Superintendent Maintenance Mobile Trucks (SRM)

BHP Billiton

**Mackay & Coalfields**

Reporting to the Maintenance Manager, this critical leadership position will be based at Saraji Mine

## Superintendent Maintenance Execution (SRM)

BHP Billiton

**Mackay & Coalfields**

This is a fantastic career opportunity to work in the maintenance field for world class infrastructure.

### HD Fitter

Downer EDI Limited

#### Geraldton, Gascoyne & Midwest

Downer EDI Mining is currently seeking experienced Heavy Duty Fitters to join the team at Karara

### Chief Executive Officer

Pacific Search Partners

#### Melbourne, CBD & Inner Suburbs

As Chief Executive, lead the organisation through its next exciting stage of growth and development.

### Quarry Manager, Senior Mining Engineer, Processing Superintendent

Metals X Limited

#### Kalgoorlie, Goldfields & Esperance

Quarry Manager/Alternate RM, Senior Mining Engineer/Alternate QM, Processing Superintendent/Alternate Processing Manager



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Subject: RE: ^\_GetUp^! ^\_2^/\_^\_2^\_ ^\_fyi^\_

---

From: Tam.VanAlphen@ministerial.qld.gov.au

To: mangocube6@yahoo.co.uk; Denise.Spinks@ministerial.qld.gov.au; Zoe.Russell@ministerial.qld.gov.au

Date: Wednesday, 12 October 2016, 4:13:58 pm AEST

---

Panel recommends against legislating..

-----Original Message-----

From: Mark Bailey [mailto:mangocube6@yahoo.co.uk]

Sent: Wednesday, 12 October 2016 4:13 PM

To: Denise Spinks <Denise.Spinks@ministerial.qld.gov.au>; Tam van Alphen

<Tam.VanAlphen@ministerial.qld.gov.au>; Zoe Russell <Zoe.Russell@ministerial.qld.gov.au>

Subject: GetUp! 2/2 fyi

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Please consider the environment before printing this email.

Released under RTI/DTMR

**Subject:** My parent's traffic dilemma + Adriene's exhibition

**From:** Sch 4 CTPI

**To:** mangocube6@yahoo.co.uk;

**Date:** Tuesday, 25 October 2016, 9:43

G'day Mark, how's it going?

I just remembered that I'd completely forgotten to send you more detailed info re my parent's traffic dilemma in Sch 4 CTPI. I've attached all the info as a separate document outlining the pertinent issues, so if you could look into it further it would be greatly appreciated by all. As I said, residents have mentioned these issues many times to both council and Dept for Main Roads, and feel they are being ignored as no changes have been made. My father Sch 4 CTPI, and is constantly aghast at the current arrangements (see attachment for more info.)

On a separate issue... the lovely Adriene Strampp is having an exhibition opening this weekend at a gallery in Spring Hill. Sch 4 CTPI and I will be in attendance, along with Sch 4 CTPI and hopefully a few others. I've attached a catalogue - the work looks as gorgeous as always. Are you in town this weekend? I have a vague recollection of being told that you might be out of town...let us know if this has changed at all as it would be great to all get together again.

Anyway, many thanks again for your help re the traffic issue.

BTW, we loved your rebuttal re the Liberal's ridiculous response to the SA power outages!

Hope all's well with you and yours,

regards,

Sch 4 CTPI

---

Sch 4 CTPI

---

**Attachments**

- Sch 4 CTPI Crossing and speed limit reduction..docx (193.87 KB)
- BRISBANE EXHIBITION.pdf (247.73 KB)

Hi Mark,

Here's some rather more detailed information regarding the dangerous pedestrian crossing in [Sch 4 CTPI] near where my parents live...

As I told you, my father [Sch 4 CTPI], so his observations and concerns come from an informed perspective.

Having used this crossing myself several times, I can also confirm that there are several safety issues in play here. In fact, it is considered so dangerous by residents (who live within an otherwise very easy walking distance to the Coles supermarket) that they are choosing to *drive* across [Sch 4 CTPI] to do their shopping, rather than use the crossing!

The points most bitterly complained about are:

- 1) The speed limit along [Sch 4 CTPI]:
  - Residents believe that 40 KPM is a much safer and more appropriate speed limit for a shopping precinct than the current 60 KPM, and this would appear to be in keeping with speed limits imposed around other shopping centres in other parts of Australia, which are generally trending towards reduced speed limits.
  - The current speed limit of 60 KPH sometimes has drivers struggling to come to a safe halt when a pedestrian steps out onto the crossing (please refer to point 3) for further clarification.) I have experienced this myself, and it can be quite hair-raising! Recently [Sch 4 CTPI] was nearly knocked over by a speeding motorcycle, and other residents all have tales of 'near-misses' whilst using this crossing. A section of road (e.g. 200 meters or more) on either side of the crossing would therefore benefit from the safer 40 KPM limit.
  - To further facilitate safety at this crossing, traffic calming methods could also be employed to alert drivers to the fact that there is the potential for pedestrian traffic at all times of the day. Currently, the generous width of [Sch 4 CTPI] gives the impression to drivers that this is *not* a residential area, when in fact it is.
  - There is inadequate signage on the approach to the [Sch 4 CTPI] [Sch 4 CTPI] roundabout indicating that the speed limit is about

to drop from 100KPH, and that drivers are about to enter a shopping precinct and residential area. This in itself contributes to drivers entering [Sch 4 CTPI] at speeds much greater than the current 60 KPM limit (which all agree is too high a limit anyway,) and is one of the reasons why drivers then have difficulty in coming to a stop at the pedestrian crossing, a couple of hundred meters from the roundabout.

## 2) The positioning of the crossing itself:

- The pedestrian crossing is situated north of [Sch 4 CTPI], which means that shoppers wishing to shop at the main shopping centre – which houses Coles, the Post Office, and the bulk of [Sch 4 CTPI] shops – have to then cross over [Sch 4 CTPI] to do their shopping. The issue here is again one of safety: The speed limit for [Sch 4 CTPI] is also 60 KPM, and there is no pedestrian crossing here. So, you have residents who do the right thing by crossing at the [Sch 4 CTPI] Crossing, only to be potentially knocked over as they try to cross [Sch 4 CTPI]. Either the crossing needs to be moved to the other side of [Sch 4 CTPI] (ie closer to Coles) or else a second pedestrian crossing needs to be installed on [Sch 4 CTPI].

## 3) The speed limit immediately preceding [Sch 4 CTPI]:

- [Sch 4 CTPI] is easily accessed by turning off the [Sch 4 CTPI] onto [Sch 4 CTPI], which takes you all the way to [Sch 4 CTPI]. The speed limit along [Sch 4 CTPI] is 100k. There is minimal signage indicating to drivers that at the roundabout the speed limit is about to drop to 60 KPM. As a result of this, motorists drive through the roundabout still in “100 KPM mode” and continue to drive at speed, hence the difficulty in slowing down at the pedestrian crossing when someone dares to step out. There is an urgent need for prominent signage to be erected on the approach to the [Sch 4 CTPI] roundabout, indicating to drivers that they are about to enter a pedestrian and shopping zone. *However, even with such signage, it is simplistic and unrealistic to expect drivers to suddenly drop their speed from 100 KPM, and so to this end it would be more appropriate that the speed limit be significantly reduced on the approach to [Sch 4 CTPI], as opposed to when they are actually already on [Sch 4 CTPI].* Further traffic calming measures would also help drivers to make this transition.

Anecdotally, several residents have raised these safety concerns either with the local council, the Department of Transport and Main Roads, or both. They feel they are being ignored or not being taken seriously, and fear that nothing will change until someone is either seriously injured or killed as a result of either one or both of these two safety issues.

In addition to this, Sch 4 CTPI and its surrounds have recently experienced a growth in permanent residents and new housing estates, not to mention a significant growth in temporary residents employed by local industries such as the Sch 4 CTPI. This increased population has led to an increase in traffic volume, and as such local residents feel this precincts' speed re-zoning is now long overdue.

As with most dubious crossing arrangements, those most at risk are the elderly, those with a disability, and small impulsive children; I, however, am none of these, and even I feel vulnerable using this crossing!

If there is any further information I can give you please let me know.

I have included an image Sch 4 CTPI sent me below:

Sch 4 CTPI

Released under RIA/2000/001

Pedestrian access to Coles Supermarket

Many thanks for taking the time to look into this!

Kind regards,

Sch 4 CTPI

Released under RTI - DTMR

Brisbane exhibition at [Jan Manton Art](#) opening next week.

[View this email in your browser](#)



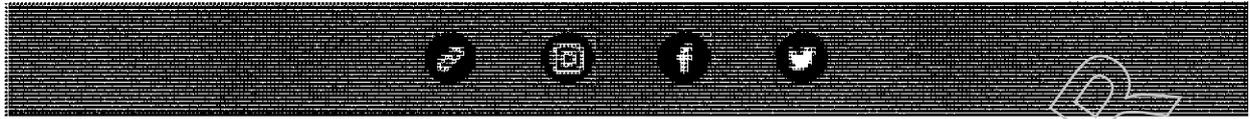
View catalogue [here](#).

**Adriane Strampp**

**SHADOWLANDS**

**26 October - 19 November**

**Opening Saturday 29 October 2 - 4 pm**



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Sch 4 CTPI

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Adriane Strampp Studio · 18A/236-248 Brunswick St · Fitzroy, Vic 3065 · Australia



Subject: ^\_CBD^\_ ^\_BUG^\_

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From: Mark.Bailey@ministerial.qld.gov.au

To: mangocube6@yahoo.co.uk

Date: Wednesday, 26 October 2016, 3:31:43 pm AEST

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## Brisbane Central Business District Bicycle User Group

**CBD BUG**

**GPO Box 2104, Brisbane 4001**

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0423 974 825

[www.cbdbug.org.au](http://www.cbdbug.org.au)

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Office of the Lord Mayor  
GPO Box 2287  
Brisbane Qld 4001

My dear Lord Mayor

The North Brisbane Bikeway (stage 1B) officially opened on Wednesday 14 September 2016. It is an excellent facility with what appears to be Brisbane's first priority road crossing for people riding bikes, and the Department of Transport and Main Roads (TMR) path terminal treatment at either end. These are both commendable treatments based on TMR's Technical Note 128 "Selection and Design of Cycle Tracks".<sup>1</sup>

The BUG has previously communicated with you about these subjects (concerning BCC facilities: Archer Street in Toowong and banana bars)<sup>2</sup> recommending the TMR approach, with limited success.

On a related note, we are delighted that "floating bus stops" as in the Technical Note are to be implemented in the forthcoming Stanley Street protected bike lane project, but dismayed that BCC explicitly rejected the concept in the Kingsford Smith Drive (KSD) project.<sup>3</sup> In the BUG's view this will render the KSD "bike lanes" (between Theodore St and Racecourse Rd) wedged between a bus lane and traffic lane with a 60 km/h speed limit unsuitable for "8 to 80" riders and useless for all except "fast and fearless" riders. This is again in defiance of TMR's guidelines which show that separated cycle tracks should be provided where posted speed limits are 60 km/h. The design also defies Austroads guidelines - "Cycling Aspects of Austroads Guides 2014"<sup>4</sup> Figure 2.2 on "Separation of cyclists and motor vehicles by speed and volume" guidelines indicate that with a speed limit of 60 km/h and a volume of traffic of more than 5,000 vehicles per day the appropriate facility is "separate paths", not "bicycle lanes or shoulders" or "mixed traffic". Kingsford Smith Drive average annual daily traffic figures are currently about 65,000 vehicles per day with 15% being heavy vehicles.

By refusing to provide separated cycling facilities in new build locations Council will continue to miss lowered active transport targets such as the already missed 2.5% of trips by bike in 2016, and 5% of trips by bike in 2026.

We are also concerned about the total lack of progress in lighting on the Grammar Shared Path. A petition containing 185 signatures (170 electronic and 15 paper) concerning this issue was presented to Council in September 2015.<sup>5</sup>

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<sup>1</sup> <http://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Technical-Notes/Traffic-engineering.aspx>

<sup>2</sup> <http://www.cbdbug.org.au/wp-content/uploads/1970/01/0/CBD-BUG-letter-to-BCC-LM-re-archer-street-20140707.pdf>

<http://www.cbdbug.org.au/wp-content/uploads/1970/01/0/CBD-BUG-letter-BCC-LM-re-Banana-Bars-20150611.pdf>

<sup>3</sup> <http://www.cbdbug.org.au/wp-content/uploads/1970/01/0/CBD-BUG-From-LM-KSD-20160629.pdf>

<sup>4</sup> <https://www.onlinepublications.austroads.com.au/items/AP-G88-14>

<sup>5</sup> <http://www.epetitions.brisbane.qld.gov.au/petition/view/pid/272>

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Advocacy

Advice

Action

The response (20 January 2016, petitions CA15/802356 and CA15/860110) stated:

*The location of this route provides significant complexities to the installation of lighting with consultation and formal agreements needing to be reached with property owners including Queensland Rail and the Brisbane Girls and Boys Grammar Schools.*

*Council recognizes this path is an important commuter route and it is identified as a primary cycle route within Brisbane City Plan 2014. Primary routes provide key lines in the bicycle network and are therefore Council's priority to ensure they are of suitable standard. ...*

*As such, this route has been identified as a high priority lighting project to be completed in stages as funding is available and integration with adjoining land holders is feasible.<sup>6</sup>*

Unfortunately, this response was virtually superfluous. It is similar to trite phrases offered verbally by Council officers in explanation such as "if this was easy it would have been done by now".

There is no difference from the petitioners' perspective between Council doing nothing and the (now repetitive and quite tiresome) response to petitions that Council "supports the project but funding has already been allocated for bikeway projects for the current financial year".

We also note that the path is a shared path, not a dedicated bikeway, and any lighting improvement would benefit both people riding and people walking. There have been several incidents since the petition closed, most recently a commuter who broke his arm slipping on gravel there in June 2016 and an incident involving multiple people riding bikes falling after one slipped on leaves (sustaining concussion) in August 2016.

Communication with the BUG and petitioners on this issue has been non-existent since this time. This is deeply disappointing, given Main Roads Minister Mark Bailey's continued personal involvement on this issue, with two letters of support sent to you. The North Brisbane Bikeway stages 2, 3B and 3C are due for completion in late 2018. These excellent facilities with priority bike crossings will attract more riders. But the bikeway cannot achieve its full potential without lighting in the Grammar Path area. The issue will not "go away" and the safety issues around the Grammar schools will only worsen with increasing traffic.

As the State Government supports the lighting project, this leaves negotiation with the Grammar schools as the only sticking point; but it is inexplicable that with the adjacent Normanby Pedestrian Cycle Link opening in September 2007 that nothing has been achieved in the nine years since.

Are you able to provide any substantive update on this issue?

I look forward to your response.

Yours faithfully

Dr Richard Bean  
Co-convenor  
Brisbane CBD BUG

22 October 2016

cc Mark Bailey  
cc Adrian Schrinner  
cc Vicki Howard

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<sup>6</sup> [https://www.brisbane.qld.gov.au/sites/default/files/20160421\\_cclo\\_council\\_minutes\\_post\\_recess\\_2\\_feb\\_2016.doc](https://www.brisbane.qld.gov.au/sites/default/files/20160421_cclo_council_minutes_post_recess_2_feb_2016.doc)

Subject: ^\_M1^\_^\_info^\_

---

From: Sch 4 CTPI

To: mangocube6@yahoo.co.uk

Date: Friday, 28 October 2016 07:53:02 AM AEST

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Hi Mark

Sorry for the delay in getting this to you but I've had my email system crash on Monday and it took until yesterday to get it back. I'm sending this via an unlinked account.

I have more to send but haven't yet got access back to the incomings from our mutual friend at Burleigh. cheers

Sch 4 CTPI

The federal *National Land Transport Act 2014* does not actually make a distinction between 'urban' vs "metropolitan" roads. In 2014 the M1 was declared part of the National Land Transport Network, and is therefore part of the National Highway Upgrade program, providing for the 80:20 federal: state funding split as occurs on other parts of this network. This has been legislated:

<https://www.legislation.gov.au/Details/F2015C00261> and the network shown

thus: <http://investment.infrastructure.gov.au/whatis/network/>

The National Partnership Agreement (NPA) needs to be read in conjunction with the above: [http://investment.infrastructure.gov.au/publications/policies/pdf/NPA\\_30\\_October\\_2014.pdf](http://investment.infrastructure.gov.au/publications/policies/pdf/NPA_30_October_2014.pdf)

This provides some further guidance, specifically around funding and administration.

None of these documents makes any distinction between road types vis the level of funding. The classification of roads in this sense is therefore irrelevant.

The *National Land Transport Determination 2014* specifically notes the roads part of this network, referencing the Gold Coast M1 thus: "The Pacific Highway from its junction with the New England Highway at Hexham, New South Wales, to its junction with Ewingsdale Road, then the Pacific Motorway to its junction with the Gateway Motorway at Eight Mile Plains, Queensland". This is noted under the heading "non-urban" to delineate roads in capital cities from links between them. There is no technical aspect to this nomenclature.

What is interesting about this determination is that the entire corridor is noted in the one listing, with the NSW section already attracting 80:20 federal funding....

Historically speaking, the 50:50 arrangement for upgrading the section of the M1 from Springwood to the Gold Coast can be considered a historical artefact, as at the time this was not designated part of the national highway network and traffic was considerably less. Since the 2014 legislation and designation, the M1 is noted by the federal government as being part of the National Land Transport Network.

Subject: RE: ^\_M1^\_ ^\_info^\_

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From: Denise.Spinks@ministerial.qld.gov.au

To: mangocube6@yahoo.co.uk

Date: Monday, 31 October 2016 09:35:11 AM AEST

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Great – thx. I will check out informally first then discuss,



**Queensland  
Government**

**Denise Spinks**

Chief of Staff

Office of the Minister for Main Roads, Road Safety and Ports

Minister for Energy, Biofuels and Water Supply

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