

The Wet End

WJ Groundwater's In-House Magazine

Spring 2014

Issue 25

Steve Cooke's
**Health
& Safety**
Column
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UK Project Update

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NOVEMBER 2013
with WJ Groundwater

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New Arrivals. Plus more...

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Welcome to Issue 25

Hello!

Welcome to the 25th Issue of the 'new look' WET END, our bi-annual source of information and company updates. I've been asked to introduce each issue. So here goes...

As you'll see, we've got a central Health & Safety feature, and over the course of the year we'll be looking at different events and reporting staff achievements. I'll also draw your attention to new and on going WJ Groundwater dewatering projects around the world at the time of writing.

I hope you enjoy the new edition of The Wet End,
Until next time,

Steve Cooke

Health & Safety Manager



Recent Changes At The Top

WJ Groundwater has recently made a series of Board level changes; Dr Toby Roberts has stepped up as Executive Chairman, Richard Fielden has taken over as Managing Director and Dr Gary Holmes has been appointed Technical Director.

Toby Roberts has been Managing Director for the last 25 years. As Chairman his focus will be on major projects, staff development and the business in the Middle East. Richard Fielden has been with the company for 20 years, the last 11 as Operations Director. Richard's move to Managing Director should rightly place greater emphasis on the vital importance of project delivery, and in particular investment in staff training, plant maintenance and driving future success. Dr Gary Holmes has been with WJ for 12 years. His appointment reinforces WJ's credentials as an engineering led company.

Equipment Quickie: 'Baby Giraffe'

Introducing a new member to WJ's family, the 'Baby Giraffe'.

This fully articulated rotary drilling rig complements WJ's existing fleet with its ability to drill at a full range of angles including upwards and horizontally at heights of up to 7m above track level. This makes it ideal for probe and depressurisation drilling within tunnels, shafts and basements.

As with WJ's existing SM5 rigs, the Baby Giraffe is operated by remote control allowing it to work in confined spaces where access can be challenging. Despite poor performance from the supplier, the drilling rig has already been put to good use drilling probes and wells within tunnels and cross passages on Crossrail.

Where boreholes have been required at height, the drillers have accessed the augers and operated the rig from a MEWP.



Project Engineer Muhammad Usman received an 'unexpected' award from major contractor, DSJV

WJ Groundwater's Muhammad Usman has been awarded for his outstanding contributions to Health & Safety, quality, production and workmanship by Dragados Sisk (DSJV). DSJV is the main contractor for the London Crossrail project alongside WJ Groundwater.

Usman, who has been with WJ Groundwater since November 2011, was presented with a certificate and a £50 gift token by Concepcion Vicente of DSJV at its site office at Lower Lea Crossing.

"I was pleasantly surprised, this accolade was completely unexpected," said Usman. "It's a proud achievement for me as a Pakistani immigrant because I have proven myself in my new home country. This is also an important validation of my skills as an engineer."

"It's very uncommon for a contractor to give an award to an associate rather than one of its own employees, so this makes Usman's achievement all the more valid and exciting for us," said WJ Groundwater's Managing Director Richard Fielden. "We're all immensely proud of his achievements."

Usman graduated from the University of Engineering and Technology with an Engineering Degree in 2007. He moved to the UK in 2010.



> Usman accepts award certificate from DSJV's Concepcion Vicente

The Wet End is edited and designed by www.windsorcopywriting.com
Contributors: Ollie Vincent, Steve Cooke, Chris Botha, Ula Markowicz, Paul O'Brien, Muhammed Usman, Richard Fielden and the Movember Team.

Shaft sinking in the North West of England

WJ Groundwater has recently begun work installing a comprehensive dewatering scheme at Lymm UID, Cheshire, UK to facilitate the construction of a 24m diameter, 22m depth shaft.

At Main Contract tender stage WJ provided dewatering solutions for two different construction methods; the first was to depressurise the artesian bedrock at depth to enable the shaft to be sunk within a perimeter cut off wall. For the second method WJ had to dewater the superficial deposits as well as the bedrock to facilitate sinking the shaft as a jacked caisson.

An initial pumping test indicated that only a small amount of drawdown was achieved in the overlying superficial deposits and upper sandstone relative to the drawdown at depth in the sandstone. This suggested that the upper sandstone had a relatively low vertical permeability in comparison to that at depth. A perimeter cut off wall option such as a secant or diaphragm wall toed into the more permeable bedrock would have cut off the upper sandstone and superficial deposits that enables a relatively simple deepwell system to depressurise the sandstone at depth with a high level of confidence. However the caisson option proposed by the Main Contractor V J Donegan's offered the client, United Utilities, several environmental benefits as well as considerable reductions in construction time and cost.

"As with most construction projects a balance between cost, practicality, risk control and innovation needs to be found," said WJ designer Ollie Vincent. "As there is often more than one way to dewater a project, striking the right balance between these is part of the challenge. As well as using our considerable experience, we take an engineering approach to designing dewatering systems, using calculations and careful analysis and consideration of the information available wherever possible. On the Lymm project it was clear that we

needed to provide a scheme that offered as much confidence as possible in light of the potentially challenging ground conditions, whilst working with Donegan's to come up with a solution that fitted around their works."

WJ's scheme allows for installing and operating a series of deepwells to depressurise the artesian lower sandstone including re-use of the pumping test well. This is supplemented by vacuum wells to draw water out of the upper sandstone; a perimeter ring of wellpoints to target the superficial sand and gravel soils and minimise overbleed for the collar construction; internal passive relief wells; and a series of monitoring wells targeting different horizons. Due to the presence of artesian groundwater conditions the deepwells and vacuum wells are to be installed with a cement grout up through the upper 8m of annulus to enable wells to be sealed at a later date.

Although the site is not much bigger than the shaft's footprint, WJ have had two of their rotary rigs continuously drilling wells whilst a team of operatives have been installing and commissioning the pumping equipment. The aim is to have the system installed and operational within a period of only three weeks.



WJ Sponsors Powerchair Football Champs Evergreen PFC

WJ Groundwater has been the proud sponsor of the current Powerchair Football WFA league champions Evergreen Powerchair Football Club (PFC) for their last two seasons. WJ's Paul O'Brien, UK based truck driver, got involved with the sport two years ago. He helps out with training sessions most Sundays and maintains a keen support for the game.

Powerchair football is a competitive team sport predominantly for players with disabilities but anybody can get involved. The game is played on a basketball court by two teams of four players. Team members face off using powerchairs to attack, defend, and spin-kick a 13-inch (330mm) football in an attempt to score goals. The league is regulated and ran by the Wheelchair Football Association (WFA) that was formed in 2005.

The 2013/14 WFA Championship sees 12 teams take part as they each compete to claim the Championship title and win promotion.

Evergreen PFC will be seen in action on 29th and 30th of March 2014 at Nottingham University. A game between Evergreen PFC and WJ Groundwater staff is also very much on the cards, so watch this space.

For more information about Evergreen PFC and the current season visit: www.aspirepowerchairsportsclub.org/evergreen-pfc
www.thewfa.org.uk/championship.php?menu=1



Health & Safety with Steve Cooke

Welcome to Steve's Health & Safety Column.

I recently likened the process of keeping WJ staff current with relevant competencies and training to painting the Forth Bridge - in that once you've finished painting it, you have to start all over again. But it's a necessary evil and I'm happy to do it! It's an on going process with so many variables and it can present so many challenges that there's rarely a dull moment. This brings me to my bi-annual column here in The Wet End in which I will be taking the opportunity to share my advice, update and notify you about up and coming events or changes in legislations and various practices. In this edition's column I will be talking about the roll out of some new training measures including electrical awareness for managers and engineers. Also, I'll highlight WJ's commitment to the Department of Health's (DoH) Responsibility Deals, namely the Smoking Cessation programme - with the help of a Bushey based hypnotist! Yes, WJ Groundwater is going all Mystic Meg this spring! WJ is also planning on improving its on site training even further by introducing into the mix, Pristine Condition - a professional manual handling specialist with a difference.

Increasing Our Core Knowledge

First of all I would like to draw your attention to WJ's plans to introduce a revised approach to technical training. The desire to bring in a company wide standard of competency across the staff body has been in the pipeline partly for sometime because of the lack of an official industry qualification / endorsement for the dewatering industry. Despite efforts to introduce an

NVQ level qualification, the void still remains. So in its absence and in order to provide proof of our competence to our clients, associates and contractors, we have been devising a company standard. From experience we've found that it's very helpful and prudent for everybody to have a working understanding of each other's processes and in a lot of cases how the technologies work. We want to increase backroom awareness of what happens on the frontline and vice-versa, so that engineers understand an on site member of staff's detail more intrinsically and know what generator or cables they may need, and a second man may understand why a certain technology has been selected by an engineer for a particular job. A series of 'electrical awareness' sessions have been planned. WJ is also planning to invite more companies into give product demonstrations, like DM Vex who supply Vacuum pumps.

This training is devised to help everybody maintain up-to-date core-knowledge across the company in order to take the pressure off the specialists and develop an even wider understanding of the processes, technology application and the standards that are expected of WJ by its associates.

Pristine Condition

Introducing manual handling training with a difference, WJ has engaged Pristine Condition - a company that offers bespoke solutions for organisations like WJ, whose staff are frequently required to move cumbersome and heavy components at its sites. Pristine Condition learns all about our work and then apply their expertise to finding the safest methods of handling our technologies and its safe installation. Interestingly their methods have been revolutionised through their knowledge of Olympic weight lifting. Pristine Condition's Davy Snowdon is a former Weightlifting World Record holder and conditioning expert for the Olympic Federation covering all sports for two Olympic games. Look out for memos concerning upcoming courses and site visits.

To learn more about their processes visit: www.pristinecondition.com



Photo by Todd Paris Picture credit: <http://uafornerstone.net/>

Smoking / No Smoking

WJ has decided to encourage its smokers to give up cigarettes via the DoH's Responsibility Deal. WJ has signed up to comply with the following pledge that can be found at: www.responsibilitydeal.dh.gov.uk



"We (the Company) will encourage staff to stop smoking, by facilitating on site stop smoking support services or by encouraging them to attend local stop smoking services during working time without loss of pay. We will also take action to reduce other risks to respiratory health arising in the workplace."

I estimate that there are around 25 WJ employees that smoke or are using nicotine products. I have invited all of them to join the scheme. There are obvious benefits to a smoking cessation drive; a healthier work force is more productive and happier. As part of the pledge we have organised a visit to a local hypnotist, who is based here in Bushey. Whilst there's no guarantee of success via this approach, it's still something that we feel may be of benefit and will meet our commitment to the pledge. I will be recruiting candidates soon and the Wet End will be reporting on our findings in the next edition.

As you all know, WJ has always encouraged staff to get involved with various keep fit schemes and to this day we have an active contingent that walk or cycle to work, along with those that regularly attend a gym or swimming pool.

To round up the column I'd like to add that during my involvement with WJ over the last decade I have seen a trend towards projects increasing in their complexity and clients quite rightly demanding more for documentation, employee competence and general standards.

As you will all know, ensuring the Health & Safety of the team is always at the forefront of our thoughts and so our drive forward has to be intrinsically linked with keeping you safe and free from ill health.

Working towards standards such as ISO9001(Quality), 14001(Environmental) and OHSAS18001(H&S) is essential in all regions, UK, Europe and the Middle East, but is invariably going to cause an increase in workload and paperwork, so we need to work together to ensure that our safety systems are efficient, reliable and communicated effectively.

Your cooperation and input to this process is essential for its success, so I ask you to comment on any area you feel we can improve on.

When you get a spare minute, try to solve Steve's new spot-the-difference anomaly.

Enjoy yourselves, safely.

Steve Cooke, Health & Safety Manager
stevecooke@wjgl.com



Steve's Spot The Difference

It's vital to wear the correct clothing when on site.

How many differences can you spot?



New Arrivals

Neels Philippus Botha

Weighing in at 3.8 kg baby Neels was born on the 22nd December at 15:25 in Qatar to proud parents Chris and Vivian.

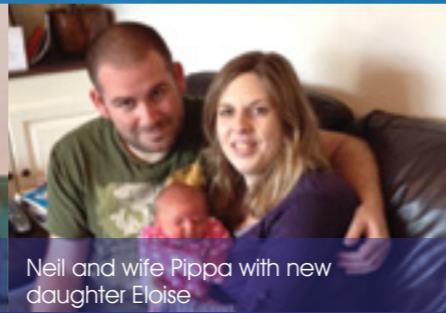
Eloise Jessica Coulter

Weighing in at 8lb exactly baby Eloise was born on the 6th January 2014 to proud parents Neil and Pippa.

Congratulations on your new bundles of joy from everyone at WJ Groundwater



Vivian and Chris with new son Neels and older brother Tristan



Neil and wife Pippa with new daughter Eloise

Project Overview: Lusail Expressway – Qatar

WJ Groundwater has commenced work on its largest project, in relation to its flow-rate, to date. The brief on this occasion was to dewater huge areas in preparation for the construction of the Lusail City Expressway in Qatar.

Lusail is a new city that is 15 km north of Doha. When completed it is expected to provide accommodation for up to 250,000 people. With its marina, commercial and entertainment districts along with the Lusail Iconic Stadium (home to the future 2022 FIFA World Cup), a considerable amount of confident investment has gone into the city's construction.

A significant aspect of Lusail's construction involves the Lusail City Expressway that links the area to neighbouring parts of Qatar. Existing roadways will be upgraded to include a new 5.3 km expressway that comprises four lanes. The expressway also includes three interchanges: the Pearl Interchange; Onaiza Underpass and Wahdha Underpass. Provision will also be made to include a light rail transit system (LRT).

WJ has been mobilised and at work on the dewatering and instrumentation for all the interchanges and excavations for the Lusail City Expressway and LRT since November 2012 and expect to conclude this work by the end of 2015.

"The Lusail City Expressway project is a first on this scale for WJ," said Country Manager, Chris Botha. "The flow rate generated will make it one of the largest ever dewatering jobs in the world. To put the scale of this system in perspective, the volume of groundwater being pumped out is equivalent to filling an Olympic-size swimming pool every three minutes." Amongst the most challenging aspects to the Lusail City Expressway dewatering job are down to the sheer size of its excavations, the local ground conditions and the tight construction programme. 130 employees are working for WJ on the Lusail City Expressway project at the time of writing.

A new labour camp and offices have been built on site, alongside a fleet of new mini-buses for getting staff to and from the site.

New technology such as finger print scanners for staff has been trialed on this project for security purposes.

A significant number of plants and materials were also required. To manage the installation programme, the machinery included seven No. rotary drilling rigs that would be working 24 hours a day and two No. SM R210 piling rigs. It is also common to find 45 kW submersible deepwell pumps, 37 kW sump pumps, 630mm dia HDPE discharge lines and 250kVA generators in large quantities on site.

In order to maintain the assets on site, a number of maintenance crews were brought in complete with a fleet of servicing vehicles. A purchasing team has also been established to buy, track, and manage the importation of supplies arriving constantly from China, India, Saudi Arabia, UAE, Italy and the United Kingdom.

Lusail is part of Qatar's vision of the future, to complete new cities that rise from the desert wastes. Located on the coast, north of Doha, the development is expected to be well on its way to completion by the end of 2016. By then the de-watering aspect of the city's constructions will have been a fleeting memory in its birth - but it will have been yet another proud landmark project for WJ Groundwater.

by Chris Botha



Lodz Fabryczna Station - Start of Dewatering

The deepwell dewatering system in Lodz was switched on the 15th of January 2014.

This coincided with the very cold weather conditions on site which made the start-up process more difficult than usual. However the site team have managed the dewatering system start-up successfully and currently, after

1.5 months of running, the drawdown across the station is on target with full drawdown expected in March. At the time of writing the system was pumping approximately 420 ls. The structure is being constructed using top down methods and the excavation under the slab was started in early February 2014.

by Ula Markowicz

The Wet End got the chance to catch up with WJ Groundwater's Country Manager for Qatar - Chris Botha. Chris joined WJ in Dubai back in 2005 and has been based in the UAE, the UK and now Qatar during his time with the company.

Chris told us about his new position in Qatar and how life in Middle East compares to his time in working in the UK for WJ.

What was your first job for WJ Groundwater?

I started with WJ in Dubai as a Project Engineer back in 2005.

Can you describe what your current job entails?

My position as WJ Qatar Country Manager is mainly focussed on the day-to-day running of the company's operations. Broadly I need to manage all the on going projects, the yard and purchasing operations. Also I oversee its financial position and the procurement of new projects.

Where were you born? Where were you educated?

I was born in George, South Africa, five hours' drive east of Cape Town. I completed my B-Tech degree at the Cape Peninsula University of Technology in Cape Town. I also studied a BSc degree from the Hanze Hogeschool in the Netherlands.

What was your first major project for WJ?

The first project I was involved in was dewatering a basement for a residential building in the Dubai Marina. This was also one of the very first Middle Eastern assignments outside of the Dubai Airport project for WJ. The first two months on this job were a baptism of fire but it also turned out to be great work experience for me. Being one of my first projects I thought that its challenging nature was probably pretty much the norm in dewatering, so it prepared me well for the future.

Describe a typical day at WJ Groundwater.

My day usually starts between 5:00 and 6:00 in the morning being woken up by my kids after which I try to squeeze in a run. By 7:00 I am in the office or on the way to attend a meeting. The majority of my time is spent on the telephone. In the Middle East it is common for meetings to be scheduled at the end of the day after 17:00. This usually governs when the workday ends. Between 18:00 and 20:00 I like to fit in some swim training and complete the impossible task of bathing, feeding and putting the kids to bed. (Even though they get bathed and put to bed daily it always seems like a huge surprise to everybody that this event is taking place). After dinner I then spend the rest of the evening studying to around 22:30 - 23:00.

You've moved to Qatar from the UK a few months ago. What do you like about Qatar?

Although Qatar is small and limited in things to do, I enjoy living here. The weather is good most of the year. We love camping in the desert by the sea, it is one of the few places in the world where you could do this. There are great camping spots where you can sleep under the stars, fish and generally just escape the day-to-day bustle of city life. The winter in Qatar does allow South Africans to do what they do best: braai (BBQ), camp, fish and play rugby. Wrestling in public is frowned upon however.

What challenges have the move brought to your life and your family's day to day life?

I have moved my family to Ghana, the UAE, Qatar and the UK over the past 10 years.

WJ Profile: Chris Botha

Not necessarily easy times, especially now that we have kids, however we have gotten quite efficient at packing up and resettling on the other side of the world. In a way, it is what we like doing.

Why did you move?

The construction market in Qatar has become more buoyant over the past three years. The award of the 2022 soccer world cup to Qatar has further increased the need for additional infrastructure. This together with the shallow groundwater table has brought a need for dewatering activities. As WJ grew in Qatar there happened to be a requirement for more full-time senior management to be in place, which is where I came in.

Do you miss the UK? Describe the contrasts between the there and Qatar.

My family and I loved living in the UK. After eight years of living in desert countries we enjoyed the UK's lush greenery, the seasons, its great public transport system, good healthcare, the rich history, the pub culture and all our weekend escapes from London. In contrast, in Qatar the sun shines 355 days a year, temperatures can regularly reach close to 50 degrees with humidity levels of 100 per cent in the summer. As can be expected, there is also a big difference between the Western and Middle Eastern culture and one has to respect the rules and beliefs of our hosts. Because there are so many expats from all over the world, you have to be flexible and able to work with any nationality. Some practices or indulgences that I would take for granted elsewhere are illegal in Qatar.

What is your fondest memory of your time at WJ Groundwater so far?

There are too many fond memories to summarise in this edition alone. I have attended numerous bizarre meetings, interesting clients and unusual dewatering projects which all come to mind. Some good memories are of the social time spent with the friends that I've made at WJ. These occasions vary from company dinners, client Xmas parties, de-stressing nights out in London, brunches in the Middle East, PJ holding the Tikki Pukka Pukka record in Dubai and the odd sporting event that we've all competed in.

Here's to many more in the future too.



Chris Botha
– Qatar Country Manager

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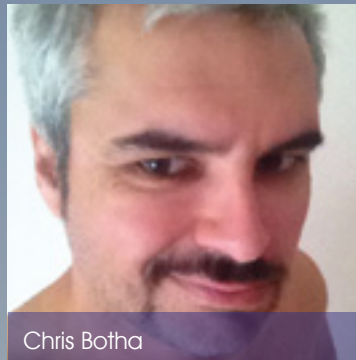
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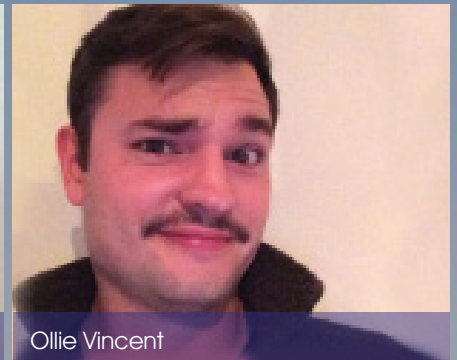
Paul O'Brien



Neil Coulter



Chris Botha



Ollie Vincent



Left to Right: Steve Cooke, Dr. Marc Bevan, Carl Gawtry, Phill Reay, Neil Coulter and Richard Fielden



Left to Right: Stuart Ward, Shaun Newbold, Lee Stone and Lennie Lenton

Internationally hairy members of the WJ Groundwater crew grew 'mo' lip hair for Movember 2013 Charity

WJ Groundwater Ltd staff from the UK and Qatar offices raised money for charity by taking part in the annual Movember challenge. Staff from all around the world got into the spirit of the event by growing a hairy upper lip for the month of November. In doing so Team WJG raised over £700.00 from friends, family and valued associates.

"Movember is a cause that is very important to us at WJ," said Project Manager Phill Reay. "Those of us who grew a moustache did so to raise as much awareness as possible about Prostate Cancer."

The WJ Groundwater 'Best Moustache Award' went to WJ Contracts Manager, Neil Coulter for his 'almighty testosterone-tastic effort' with similarities to Hulk Hogan.

"Whether you favour a Village People-style handle bar or a simple horseshoe, you can do your part," added Managing Director, Richard Fielden. "We wanted to emphasize that Movember goes way beyond a simple competition to boast the best 'tache'. "We wanted everybody to know the true purpose behind our facial fur growth."

WJ Groundwater would like to thank Geoquip, Cleansing Services Group and Paul Blackledge Drilling Ltd that each made a generous donation.

Prostate Cancer is the most common Cancer type in men and is the second largest cause of male Cancer deaths in UK. Every hour one man dies from Prostate Cancer and over 40,000 men are diagnosed with it every year. It's estimated that by 2030, it will be the most common Cancer.

Movember web site: www.uk.movember.com

WJ Groundwater's Hairy Honour Role for Movember 2013:

- Richard Fielden (Managing Director)
- Ollie Vincent (Design Engineer)
- Steve Cooke (Health & Safety Manager)
- Neil Coulter (Contracts Manager)
- Carl Gawtry (Drilling & Operations Manager)
- Paul O'Brien (Driver)
- Lee Stone (Yard Manager)
- Stuart Ward (Driller)
- Shaun Newbold (Yard Man)
- Dr. Marc Bevan (Project Manager)
- James Southwell (Graduate Engineer)
- Phill Reay (Project Manager)
- Chris Botha (Country Manager - Qatar)
- Lennie Lenton (Dewatering Supervisor)



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