



# The Institute of Quarrying New Zealand Inc

## IOQ QUARTERLY NEWSLETTER

Issue No. 27

June 2011

### Executive Committee 2010/11:

**President:**

Mr Warwick Leach

**Vice President:**

Mr Gavin Hartley

**Immediate Past President:**

Mr George Kelcher

Mr Murray Discombe

Mr Chris Gray

Mr Gordon Laing

Mr Andrew Mahan

Mr Peter Morgan

Mr Les Ward

**National Secretary/Treasurer:**

Mrs Christine Dodds

**Invited Board Member:**

Mr Kevin Walker,  
CEO Exito

### President's Notes:

#### Welcome to the June newsletter 2011

By the time you get this Newsletter we will be at the Rotorua conference. I hope that everybody has got their winter woollies out as winter has arrived. The days are shorter now and so most quarries have pulled back the hours of work.



The IOQ NZ executive had our joint conference meeting in Wellington on the 18<sup>th</sup> May. Looks like everything is running to plan with Dean Torstonsen's Waikato team completing the finishing touches to the conference program. These guys and ladies have done a huge amount of work behind the scenes to make this conference one to remember. I'm sure that all attending will get something out of the conference, whether it be from listening to the speakers, the papers presented or some great information from the trade stand people. This can then be taken back into the workplace and no doubt, some improvements will be seen.

Talking about the trade stand area, it is full and it's the largest number we have ever had. I must congratulate Pat Mattinson for her hard work here. Thanks to Adrian Mattinson, with the help of Roger Parton, for the work that they have done in organising the Rotorua conference. I would also like to thank Tracey Amundsen for all her work behind the scenes in organising the ladies trip and checking out other things that we have for the conference.

The registrations have been slow in coming in and at this stage, it appears that numbers attending will be down, which is a shame. We are hoping that June will certainly see some positive movement in this direction.

It's that time again when we should always remember to support our sponsors under the Friends of the IOQ NZ banner. This is a very important part of our funding and as you can see, their company logos are on each page of the newsletter. I encourage you to use these sponsors, even if it is just to get a price from them to compare their price from your usual suppliers; who knows, you might even save some money!

The Board has been working on a number of projects which are:

- Gavin Hartley is working on the NZ Quarry History book – a work in progress.
- Gordon Laing is tidying up the IOQ rule changes and this is nearly completed.
- Murray Discombe is working on the IOQ website - check out our updated home page.

- Christine Dodds has been working through the Tax and general transactions on the IOQ's financial side.
- Les Ward & Dean Torstonsen and their Waikato/Bay team working through the conference. Thanks goes to Harry Toa, Mario Kerkhof and the Hinuera Stone team for the superb stone carving of the Pink and White Terraces; and a special thanks to John Illingsworth, the owner of Hinuera Stone, for allowing all this to happen.

Richard Steel, the new Mines Inspector, I hope will be at our Conference which will give us the opportunity to catch up and voice our concerns on issues that affect our industry.

EXITO has had some big changes on the Board structure this year with Brian Bouzaid being elected as Chairman of the Board. This gives the IOQ members support, training and direction from our representatives with EXITO going forward meeting TEC requirements. Other members on the Board are

Gordon Laing and Bruce Taylor who represent our industry. Andy Loader and Tim Kennedy represent the EXITO SAG group which brings to the table our views and ideas from our industry.

To our sponsors thank you again - without your sponsorship our events, conferences, branch meetings and field trips would not happen.

To finish, enjoy the conference and as my two year term as President comes to a end, I would like to thank George Kelcher for all his wise input over the period of six years and the six years prior too as a board member. Thanks must go to Murray Francis, Owner and Director of Road Metals, for allowing

George the time to be involved with the IOQ. Thanks to the Board for all your support over this year. To Christine, thanks for all your hard work in recording minutes at Board meetings and all your secretarial work that we rely on.

I would also like to wish Gavin Hartley all the very best in taking over the helm of the IOQ and like George, I'm only a phone call away.

Warwick Leach  
President

Institute of Quarrying New Zealand Inc



## IOQ/AQA JOINT CONFERENCE ROTORUA 2011



There is still time to register for this year's conference in Rotorua on 6 – 8 July. The theme for the 2011 Conference is: **Cornerstone of the New Zealand Economy** illustrating the importance of aggregates to New Zealand's future economy and growth.

There are a number of resources that are vital to New Zealand and some of these receive a lot of attention, while other equally important but less glamorous resources receive little or no attention. One of these is the humble aggregate, the rock, stones, stone chip and sands at the heart of the structures and civil infrastructure all around us in everyday life. It is easy to overlook this basic building block of our society. The aggregates industry is relatively small, with direct value added representing 0.1% of New Zealand's GDP and direct employment of 0.1% of New Zealand's total workforce. But these simple metrics totally belittle the importance of this industry:

- NZ uses some 50 million tonnes annually (11 tonnes per person), with prediction of 50% increase by 2020.
- Over half output is used for roads, 21% (a quarter by value) for construction or residential and commercial/industrial buildings.
- Aggregates are low value by weight, thus transport costs become a major cost component, making proximate sources important to keeping costs down.

Aggregate provides one of the principal raw ingredients of infrastructure, be it the fill beneath roads or buildings, rip-rap for land reclamation and off-shore protective works, through to the reinforced concrete in bridges and buildings. Hence the supply of affordable construction aggregates is as much a prerequisite for growth as the funding of infrastructure.

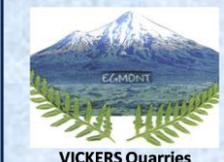
The Winstone Aggregates Safety Trophy will be awarded for the 20<sup>th</sup> time at the Rotorua Conference.



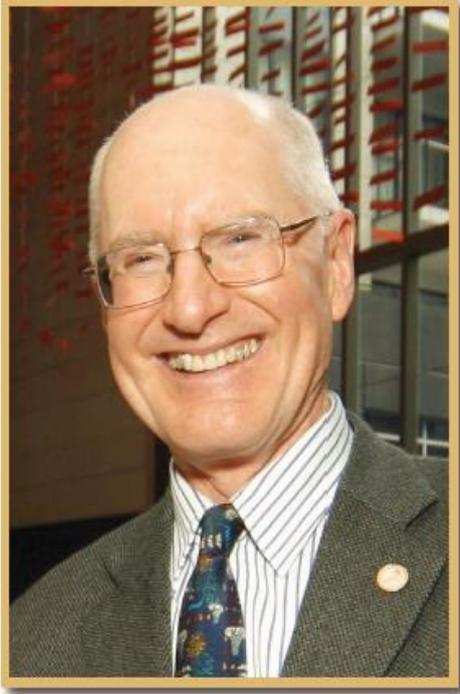
Conference Location:  
Rotorua Energy Centre  
Queens Drive  
Government Gardens  
ROTORUA

The Institute of Quarrying NZ Inc

acknowledges with gratitude sponsorship and support from the following companies:



**GUEST SPEAKER THIS YEAR FOR THE JIM MACDONALD MEMORIAL LLECTURE SERIES 7 – 11 NOVEMBER 2011**



**Adjunct Professor David Hood**, a civil and environmental engineer with vast experience across major civil and military projects, professional development in emerging economies, senior management in both the public and private sectors and in education, will discuss the difference between sustainable infrastructure and infrastructure sustainability, and how Australia is responding to the need to deliver greater sustainability in large projects.

Following a successful career in project management David took over and commissioned Australia's then New Parliament House in the mid 1980s – a life changing career episode. Since that project, David has become increasingly involved in fostering a culture of sustainability across all engineering disciplines, and the built environment. David, an accredited Presenter with Al Gore's Climate Project, is also Chairman of the Australian Green Infrastructure Council, a new industry association developing the world's first sustainability rating scheme for infrastructure.

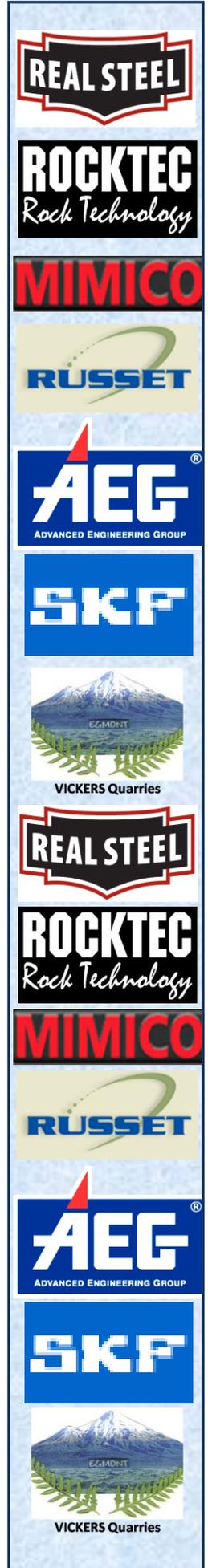
**AEG News:**

**AEG New Zealand Expansion - Update**

Within a couple of weeks time our new manufacturing plant and offices in Christchurch will be fully functional. This project completion will enable AEG to provide greater service to our customers above and beyond our already high customer service standards.



Additionally, AEG Christchurch underwent the ACC WSMP (Workplace Safety Management Practices) audit in mid May and have passed at the Primary Level. We are happy to have our OH&S practices up to scratch and are continually improving and upgrading our work place safety standards. Congratulations Melissa and the team in Christchurch!



**Message and Invitation from IOQ Malaysia**

We are pleased to announce that IQM will be holding its next Quarry Conference and Exhibition on 12 & 13 October 2011 at the Palm Garden Hotel, IOI Resort, Putrajaya, Malaysia and would like to extend our invitation to all at the Institute to attend this Annual Event - IQM Conex 2011. Details of the event – see below. We sincerely hope to get a delegation from the respective Institutes and if there is any area of presentation that you feel would relate to our conference theme kindly confirm with us as soon as possible. We thank you for your attention and hope to get an early response.

Nirmala Devi, Manager  
 Institute of Quarrying Malaysia  
 Tel : 603-80624194 or Mobile : 6012-2197519



**CALL FOR PAPERS**

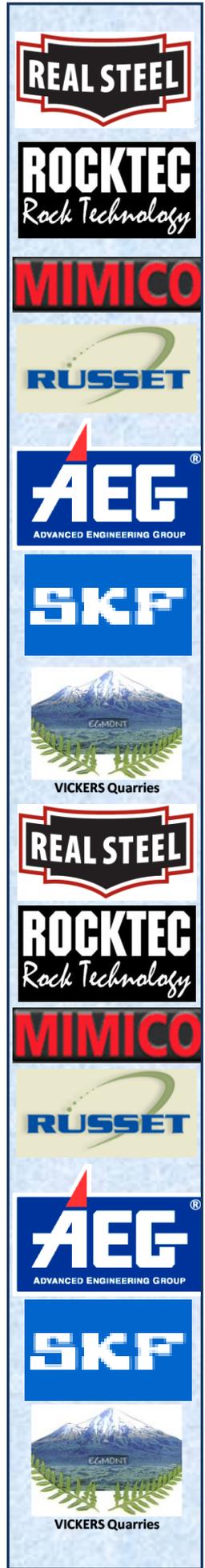
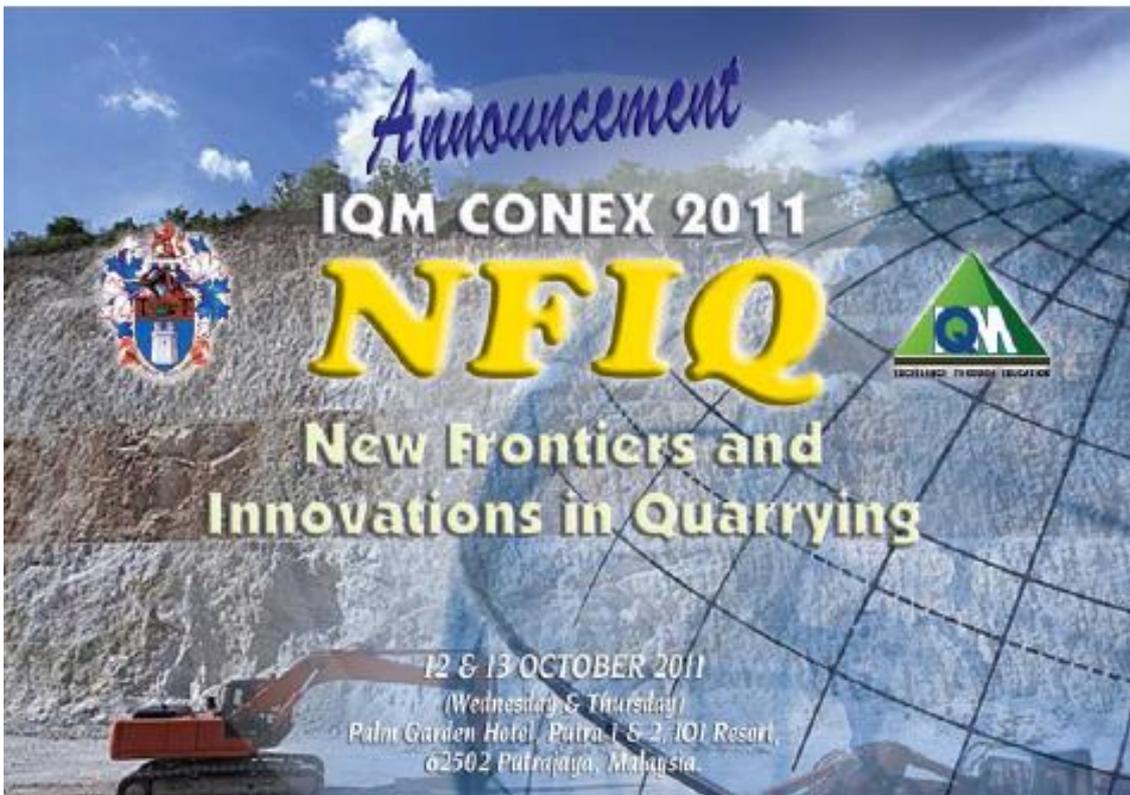
Prospective authors are invited to submit abstracts of not more than 150 words to the IQM Secretariat by fax or email before 30 June 2011. The scope of papers submitted should be related to the conference theme.



**EXHIBITION  
 (INDOOR & OUTDOOR)  
 & SPONSORSHIP**

Circulars will be mailed out soon with full details on Exhibition Lots and Sponsorship. Kindly contact the IQM Secretariat, Madam Nirmala Devi if you wish to enquire further.

For more information please contact the IQM Secretariat:  
**Madam Nirmala Devi**  
 Tel : 603-80624194 / 80624195 Fax : 603-80618258  
 Mobile : 6012-2197519 Email : [detqm@po.jaring.my](mailto:detqm@po.jaring.my)



## A Talk given to the IQ Australia – Ken Andrews

### High Pressure Grease Incident 31/07/2004

*Ken Andrews started his career in the maintenance, construction and mining industries as an apprentice Fitter and Turner some 40 years ago. Since then he has held a range of positions from tradesman through to maintenance manager for a large mining company.*

*Ken is currently employed by Rio Tinto Coal Australia as a project technician at Bengalla Mining, near Muswellbrook in NSW. Due to Ken's front line and management experiences he has developed a passion for promoting safety in the workplace in general, and specifically, in the area of Working with Fluids Under Pressure. Through Ken's presentation he shares his involvement in a serious safety incident, to heighten our awareness of the dangers our operators and trades persons face daily when working with modern machinery and fluids under pressure. Ken also shares a quick look at a simple way to improve safety in the workplace and reinforce the need for everybody's involvement in making the way we all work safe.*

The incident occurred just after mid night on the 31/07/2004. I had started work at 7.00pm on the 30/7/2004 and was handed over a job to change a dump sheave on the dragline. The dump sheave is one of a pair of rope sheaves that allow the dragline bucket to empty when over the spoil heap.

A rebuilt sheave was organised to site from the supplier and arrived around 8.00pm. I organised cranes and equipment required to carry out the change, carried out and completed the required task risk assessments, removed the old sheave and fitted the new one. The sheave wheel is supported by a centre axle and taper roller bearings. I called our lube service truck to the dragline and explained to the operator that I needed him to pump grease into the bearing assembly until he could see grease coming out between the wheel and both side frames.



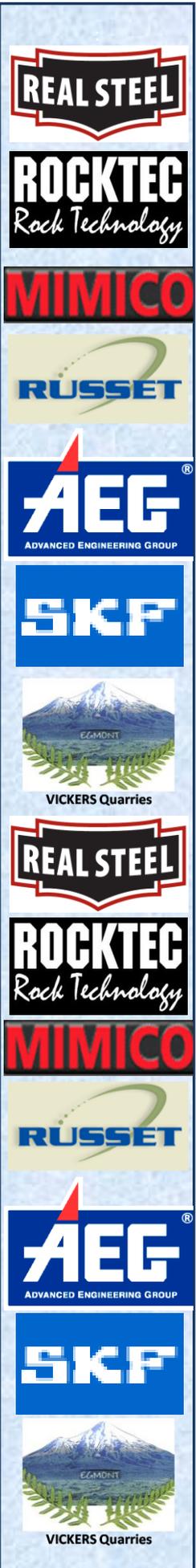
*Dump sheave assembly.*

*Position of grease nipple as I viewed it*

I left the operator to do this while I carried out some other work on changing out the other dump rope. After sometime the operator came and said he had been greasing for several minutes but was not seeing grease coming out of the assembly. We went and had a look, I proved the grease system from the truck was working OK and explained to the operator that we would have to be careful in trying to find why the grease was not coming out as we could have up to 10,000Psi built up in the sheave bearing area.

At this point I believed the bearing assembly was sealed by a labyrinth type seal as I had seen in other sheaves over the years, I have been working with draglines and high pressure systems since 1969. I made a decision to loosen a second grease nipple that was visible on the top of the assembly by a flat (1/6th of a turn) to see if any grease or air would leak past the thread. I had noted that there was no sealant on the nipple. I reached into the sheave frame and loosened the nipple as I had planned and stepped back for a short time, I then stepped back to the sheave and looked down on the nipple to see if any grease had become visible, there was a load bang and the grease nipple was fired from the assembly.

The nipple struck my safety glasses and separated the lens from the frame and they were torn from my face, the lens cut me to the bone above the right eye and across my nose. A column of grease and highly compressed air was discharged from the bearing housing and struck me just below and in the right eye, this destroyed my eye, shattered all the bones around and behind my eye and the bone fragments and a quantity of grease ended up inside my skull. The cranial sack was rupture and grease and bone entered my brain. I was recovered to a major hospital some two hours away by road for treatment. For a couple of hours I waited in ER as the full extent of damage was not investigated, when a surgeon examined me they realised cranial fluids was visible on my face and I had brain intrusion injuries. It took another 5 hours to get a team from Sydney to come to Newcastle to treat me. Recovery has involved further operations, eye prosthesis implant and recovery time. The end result being a total loss of sight in the right eye, about a 50% hearing loss in the right ear along with some slight balance problems and post traumatic stress issues.



Investigation into the incident showed the bearing housings to be sealed with high quality lip type seals, these are installed as shown by the manufacturer in the oil seal direction. Testing of an identical assembly showed that grease would not bypass new seals at under 4500Psi, because Pascals principle applies the more pressure that acts on the seal lips the tighter they seal on the shaft. At 4500Psi grease was starting to bypass the outside of the seal. From my experience it appears these sheaves would have originally ran oil filled bearings, at some time they have been changed to grease and the seals had not been reversed as they normally would be in a grease fill situation. Interestingly the sheaves had suffered less than expected bearing life up to this point, obvious in hind sight that until the seal fails grease cannot be purged through the bearings. The OEM has now fitted external drain valves and relief valves but has chosen to leave the seal orientation as it was.

There are two trains of thought as to the cause of the nipple being expelled; first that it simply blew out under the pressure, second that it MAY be possible the atmospheric oxygen trapped in the housing exploded with the high pressure hydrocarbon. The second option has not been given much credence, from the BANG I heard equivalent to a high powered rifle shot it could be possible. The nipple and grease travelled about 600mm before hitting me. I returned to the workplace 14 days after the accident and have since worked in a technical support role.

I was challenged by my General Manager when I returned to work to put together a toolbox talk that would tell our people about the dangers of high pressure fluids. The government inspectors established from the information I had passed onto the lube operator that I new what I was working with and did understand the hazards, but, I had been caught out. That toolbox talk has now grown to a presentation that talks a bit over an hour depending on the audience; I don't only talk to the hazards of hydraulics and hydraulic tooling. I also stress the dangers of high pressure water blasters, compressed air and now the increased dangers to mechanics from high Pressure common rail fuel systems, we currently are running up to 19,000 Psi systems in our mining fleet, the more scary is that most of the now popular light vehicle common rail engines run around 28,000 Psi in the fuel rail. Most mechanics in service centres have no idea of the hazards or the potential for injury.

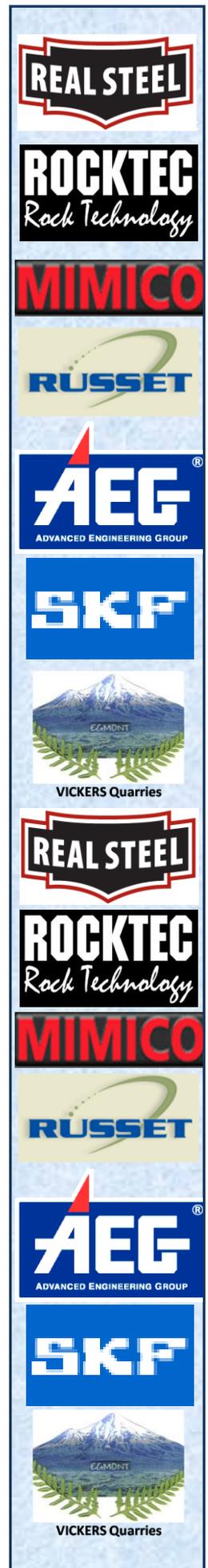
My presentation is very graphic in places as I use incidents that have happened to drive the message home. I conclude by explaining there are people waiting at home, they want to see you arrive home safe. On the 30/07/2004 I kissed my wife goodbye at the door at 6pm; at 1.00am my wife and two children had to rush to the local hospital to see me laying on a gurney, covered in blood and grease, not knowing if I was going to live or die. That moment still impacts my now 17 year old daughter.



*Dragline bucket the night of the incident*



*After a third operation and implant for the prosthesis*



## IOQ BRANCH REPORTS

### REPORT ON IOQ WAIKATO/BOP VS AUCKLAND ANNUAL GOLF CHALLENGE BY ALLAN MCDONALD

Played for on the 12<sup>th</sup> of March at Tahuna Golf Course over 9 holes, the day was only slightly marred by only eight Aucklanders turning up. This gave Waikato/Bay the chance to ‘unload’ some of our not so good golfers to give us a better chance of giving Auckland a walloping!! It is great when these plans are made good with us scoring a net of 211 versus Auckland with 238. A great day was made all the better by ourselves retaining the “Prime Explosives Cup”. Thanks to Clarrie Beardsmore of Prime who did a great job on his 4-wheeler delivering the necessary rehydration fluids and sustenance. Thanks also to ENZED for the BBQ and to Gough’s, THL, Applied Conveyors, AEG, Orica, Bridgestone, Top Rock, Redbull Powder Co, Volvo and Real Steel for their contributions. Everyone took a prize home. It was a ‘dag’ to see that Andrew Dronjak was right at home amongst the sheep – he couldn’t pull the wool over their eyes!



Allan McDonald accepting the Challenge Trophy from Clarrie Beardsmore



To the victor – the spoils!!



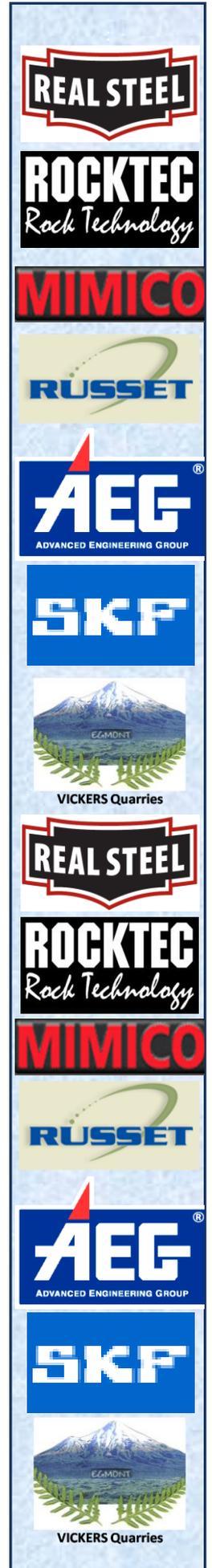
The winning Waikato/BoP team



Was that a four or Fore ???!



Prizegiving banter



**REPORT ON THE WAIKATO/BAY OF PLENTY IOQ BRANCH MEETING  
10<sup>TH</sup> MAY  
BY WARWICK LEACH**

Mimico hosted the meeting, held in their excellent premises in Matamata. 30 members attended the meeting which was sponsored by Orica in which Richard Taylor gave us a talk on blasting modeling.



Richard Taylor of Orica discussing blasting modelling

He discussed with us the three methods of blasting modeling, what they are and how they can be suited to each individual quarry and the huge amount of information they can gather from feeding past history of your site into their computer data collection system.

This means that they can do trial firing patterns, via computer, before even going to a site and will understand the fracture of the rock and thus adjusting patterns to get the best results. Amazing.



Richard had the good crowd enthralled

Dean Torstonson, the Waikato/Bay Chairman, then touched on the ongoing arrangements for the upcoming Conference, which is on

track. The Conference Committee has had a meeting at Hinuera Stone to view the natural stone carving to be displayed and it looks fantastic. Based on the Pink and White Terraces, it will be donated to the Rotorua District Council at the conclusion of the Conference and will be relocated to the newly upgraded.

Starting with a 30 tonne block, the final product weighs in at 15 tonne – it is certainly some carving. A big thank you to Harry Toa and his team at Hinuera Stone to bring this idea of Harry's to fruition and help from a local carver, Mario Kekhof.



## Article by Peter Morgan

Solid Energy have recently taken delivery of this Hitachi ZX870LCH excavator (photo ZX870 1). The 85 tonne machines primary duty is loading-out coal from Solid Energys New Vale Mine at Waimumu, Southland. It is powered by a 15.68 litre Isuzu AH-6WG1XYSA-03 powerplant that is rated at 397kW and 2250Nm of torque. The CablePrice Invercargill supplied



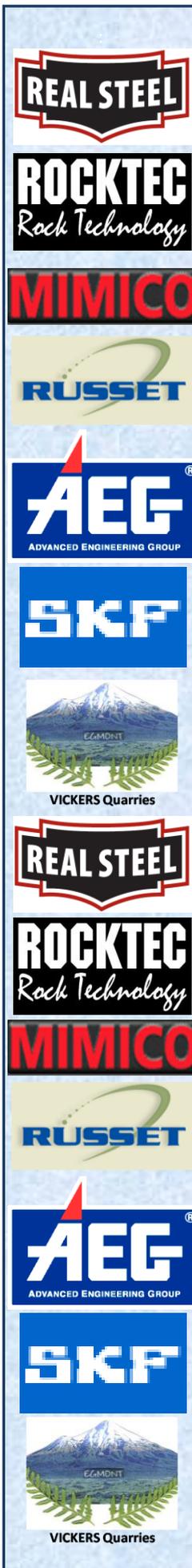
machine is fitted with a Sandvik fire suppression system, LED worklights, remote monitoring and shutdown ability plus a comprehensive range of other factory options.

The ZX870 is fitted with a 5.0m<sup>3</sup> digging bucket and loads a fleet Nissan CW380 road trucks adapted for hauling the coal approximately

1000m from the face to the processing plant. Current production rates sit at about 330,000tpa however this will increase to approximately 480,000tpa once the new briquette plant is commissioned at nearby Mataura.

Also on site is this Hitachi EX1200-5 (photo EX1200 2). This machine has just received a full overhaul at Solid Energys on-site workshop. The EX1200 is mainly used for overburden stripping. It is currently loading four 40tonne ADT's with 3 passes each. Solid Energy have ordered three 50 tonne Bell ADT's to operate with the EX1200 in the future.

Once the new briquette plant is running the site will require a second overburden stripping operation to keep ahead of demand. The site management plan has stripping and extraction mapped-out for the next 20 years. This will amount to approximately 30Mt of overburden and 10Mt of coal being excavated.





# New President for the Institute of Quarrying NZ Inc

Gavin Hartley of Blackhead Quarries in Dunedin is the new President of the Institute of Quarrying (IoQ), succeeding Warwick Leach of HG Leach & Co, Paeroa, at the QuarryNZ Conference in Rotorua. The duration of the role is two years.

Gavin was born in Christchurch and graduated with a BSc in geology from the University of Canterbury in 1988. He moved to the quarry industry when he took a job with Fulton Hogan as their drilling operations manager. This lasted until 2005 when the drill and blast division of Fulton Hogan was integrated into Blackhead Quarries Ltd.



Gavin stayed on at Fulton Hogan for another two years doing mostly environmental work for the company. During this time one of the more significant jobs he managed was the environmental work associated with the construction of the Otago Correctional Facility at Milburn south of Dunedin. Gavin presented a paper on the aggregates used in this project to the 2007 IOQ / AGA conference titled "Quarry to Correctional Facility". This paper won him the Lyn Jordon Memorial Trophy for the best paper presented by an IOQ member that year.

Since 2007 Gavin has been the manager of the Blackhead Quarry, a hard rock basalt quarry located on the southern side of Dunedin. The aggregate processing plant at the Blackhead Quarry is currently being upgraded and as manager the design and building of this plant will be one of Gavin's responsibilities.

Gavin started his involvement with the IoQ in 1995 attending meetings and joining up as an associate, upgrading to a member in 2003. He has been the Otago Southland Branch secretary since 1999 and had a brief stint on the National Executive from 2003 to 2004. A change in his job description at the time meant he was not actively involved in the quarry industry so he withdrew from the executive. This however this never stopped Gavin being committed to the Otago Southland Branch and the quarry industry in general. After returning to the quarry industry full time Gavin was once again elected to the National Executive in 2007 and elected Vice President in 2009.

Gavin's drive and determination have been the backbone of the Otago Southland Branch of the Institute of Quarrying for the last 12 years. He has been married for 19 years to Diane, has three children - Nicole (16), Adam (14) and Erin (9). All the children are involved with sport, with a lot of time spent delivering them to and from practice and games. Gavin's main interests outside quarrying and family are cycling and sailing.

For further information regarding the IOQ and membership contact either:

<b>Christine Dodds [IOQ SECRETARY/TREASURER]</b>	or	<b>Gavin Hartley [IOQ PRESIDENT]</b>
P O Box 36 037, Merivale, CHRISTCHURCH		P: (03) 487 9031
P: (03) 355 3235		F: (03) 487 9043
E: <a href="mailto:chrissr@inet.net.nz">chrissr@inet.net.nz</a>		M: (027) 436 9138
		E: <a href="mailto:gavin.hartley@bhq.co.nz">gavin.hartley@bhq.co.nz</a>

## Well done to the Award winners at Joint IOQ/AQA Conference 2011 –

- R D Hased ..... Tony Hunter, Blackhead Quarries
- Goughs Cat Travel Award ..... Allan McDonald, Perrys
- Rocktec Innovation Award ..... Jason Hinton, Winstone Aggregates
- Winstones Health & Safety Award..... Holcim NZ, Hastings – Hans Hollis
- Lyn Jordan Award ..... Glenn Kiernan, Inline Drilling



## KEY LINKS

- AQA..... [www.aqa.org.nz](http://www.aqa.org.nz)
- EXITO ..... [www.exito.org.nz](http://www.exito.org.nz)
- Australian Institute of Quarrying ..... [www.quarry.com.au](http://www.quarry.com.au)
- UK Institute of Quarrying:..... [www.quarrying.org](http://www.quarrying.org)
- SKF ..... [www.skf.co.nz](http://www.skf.co.nz)
- Real Steel ..... [www.realsteel.co.nz](http://www.realsteel.co.nz)
- Mimico..... [www.mimico.co.nz](http://www.mimico.co.nz)
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- Vickers Quarries..... [vq@xtra.co.nz](mailto:vq@xtra.co.nz)

