

New Zealand Geothermal Association (NZGA) News – 18 March 2015

Dear Members and friends, welcome to this issue of the NZGA Newsletter!

President's Report

Welcome to the March 2015 New Zealand Geothermal Association Newsletter.

The feature event that is now very close is the
2015 World Geothermal Congress.

The New Zealand Geothermal Association (that is you and me) in conjunction with the Australian geothermal associations are **HOSTING** the world geothermal community at this event.

As a member of the Association I would like you to consider what hosting at this event might mean for you. How am I going to assist people from other nations to really enjoy the event. Personally I think it is around being friendly and caring.

- A warm friendly good morning or kia ora welcome to people who you don't know.
- Understanding where things are at the Congress so you can assist those who might be a bit "lost" and need some assistance.
 - Where can they get a coffee?
 - Where is there somewhere quiet to sit?
- Join me to welcome people on the Sunday afternoon as they come to register. I am going to be in the foyer of the Melbourne Convention Centre in the area of the registration area and would like you to join me to warmly welcome people as they come to collect their conference materials.



A warm welcome from a New Zealander as part of coming to register will be a great way to start the Congress.

To be effective I need support from you please.

To join the group please email K.warren@GNS.cri.nz indicating your willingness to be part of this welcoming team. Subject line in the email is "Willing to Welcome WGC".

Participants will come to collect their materials in the foyer of the Melbourne Convention Centre commencing at 1500 hours and registration is open for 2 ½ hours.

I will set up a roster of 2 shifts 1430 to 1545 and 1545 to 1730 and allocate. Come and get registered ahead of being ready to welcome others, that will then mean you have a name lanyard, wear your NZGA pin and wear your black NZ attire.

I am looking forward to being with you in Melbourne to share this great experience together.

Brian Carey
President New Zealand Geothermal Association
March 2015

WHAT'S IN THIS ISSUE?

- **Welcome**
- **New Board members**
- **National news**
- **Information**
- **Membership**
- **Events**

GEOTHERMAL FACTS – Did you know that, in terms of primary energy, the two greatest (in quantity) sources of New Zealand indigenously produced energy stocks are natural gas and geothermal energy, as of 2013. Following increases in geothermal production in 2014, geothermal energy is now likely to be "No. 1".

New Board Members

At the AGM we saw the retirement of Claude Bannwarth and Marcel Manders from the NZGA Board. Paul Quinlivan continues as an Observer due to his ongoing liaison role with IGA. Thanks to these people for their service. We welcomed Kevin Koorey, Nigel Matuschka, Shanon Garden and Stephen Daysh.

Kevin Koorey – MB Century

Kevin Koorey is the Geothermal Development Manager for MB Century. He started with company in 1986 when it was the Ministry of Works. He has 28 years' experience in geothermal engineering and steamfield design and has worked on every major development in New Zealand and projects in Indonesia and Papa New Guinea. Kevin has a bachelor of engineering from Auckland University and is a chartered professional engineer. Kevin would like to see the NZGA continue to promote information sharing and training with the New Zealand geothermal community.



Nigel Matuschka – Thorndon Cook Power (formerly Parsons Brinckerhoff)



Nigel is a mechanical engineer with 14 years' experience, including 5 years' in the geothermal industry. His geothermal experience includes his role with Parsons Brinckerhoff as part of the joint venture EPC 2 x 83 MW Te Mihi Geothermal Project, where he was involved in the process design, mechanical detailed design, equipment procurement, bid evaluation and award, and on-site construction support.

Other geothermal experience includes preparing feasibility studies, FEED, geothermal process design, and tender document preparation for various geothermal plants in New Zealand, Indonesia and the Philippines. He has recently spent time in the Philippines commissioning geothermal plant for EDC. As a new member of the NZGA Board, Nigel would like to help develop and grow New Zealand's geothermal energy industry both domestically and internationally.

Shanon Garden – Mighty River Power

Well Services Manager, Mighty River Power. Responsible for drilling, well testing and well asset management planning across Mighty River's geothermal reservoirs. He has been with MRP for 5 years, working initially in a commercial role before moving to Rotorua to take up the Drilling Manager role in 2011. Prior to MRP, Shanon held commercial and project management roles in the finance, construction and property development sectors. He has a young family and as time permits he tries to keep active through a combination of mountain biking, running and skiing.



Stephen Daysh – Environmental Management Services



Stephen Daysh is the founding Director of Environmental Management Services Limited (EMS) and has 30 years environmental consulting experience in New Zealand, Asia and the Pacific. His primary specialty is the project management of environmental investigations and consenting processes for energy and infrastructure facilities and developments.

He has been engaged as the lead environmental consultant for the consenting of 15 electricity generation facilities involving geothermal, wind, thermal, and hydro resources for a range of energy clients over the last 20 years.

In the geothermal sphere Stephen managed the consenting team for the exploration and development phases for the Wayang Windu geothermal project in Indonesia in 1995 and 1996, and during the early 2000s was the lead consultant for the successful re-consenting of the Ohaaki and Wairakei geothermal plants. He has also managed the consenting processes for Contact Energy's Wairakei Binary Plant, and the Te Huka, Te Mihi, and Tauhara II geothermal development projects near Taupo in New Zealand.

His latest geothermal project has involved advising the Vanuatu government on the Takara Geothermal Project which is under investigation.

National News

New geothermal generation high

We are waiting for official results from MBIE, but New Zealand geothermal generation has just touched 7,000GWh for the 2014 calendar year – a new record. This accounted for 16.6% of our total generation for the year. This is the first time since 1975 that geothermal generation has exceeded both coal and gas generation.

Change of ownership for the former PB New Zealand

Parsons Brinckerhoff has left the geothermal market following their sale to WSP Global in October 2014, and the core thermal power staff from the Auckland and Wellington offices have now formed a new company, Thorndon Cook Power. The New Zealand-based core team of 10 people has very strong geothermal experience and a good range of skills to cover the combustion thermal and hydroelectric power market. Thorndon Cook has already picked up contracts in Indonesia, the Philippines and Kenya as well as New Zealand but intends to maintain a focus on domestic work. Some of that domestic work will involve efficiency measures and upgrades for existing stations.

Consent sought for Tikitere geothermal drilling project

In February 2015 Tikitere Geothermal Power sought resource consents for well drilling and testing from Bay of Plenty Regional Council on the Rotoiti (Tikitere) geothermal field.

Consent sought for Ngawha geothermal project

In December 2014 Top Energy sought consent for the expansion of their Ngawha plant together with replacement consents for the existing operations. The expansion provisions will enable an additional 50 MWe of geothermal electricity generation in stages through two further power stations. They are seeking to take up to 28 million tonnes of fluid per year. <http://www.fndc.govt.nz/services/planning-and-development/resource-consent-notice/notices/resource-consent-rc-2150191-top-energy-limited/Public-Notice.pdf>

One of the interesting effects of the current development has been the degassing of the field. This is not surprising given 100% reinjection of degassed fluid. Previously gas content in the fluid was 1.32% of total discharge, but has now dropped to 0.59%.

Top Energy chief executive Russell Shaw is hopeful of a further 50 MWe potential beyond these next expansions, to be based on step outs to the north.

Contact considering international geothermal expansion

Contact Energy's half year results announcement on 16 February caused a reaction from investors as they announced they were investigating options to grow in international markets. Investors had been anticipating a significant increase in dividend to be announced following Contact's completion of its 6 year, \$2 billion capital programme which included investments in the Te Mihi and Te Huka geothermal power stations and the unique Wairakei bioreactor. Contact CEO Dennis Barnes noted that Contact's priorities remain the safe operation of its business, providing customers with the quality of service and products they expect and creating long-term value for Contact's shareholder. He added that Contact believed material growth opportunities in New Zealand that leverage Contact's long history in geothermal and hydro development and operation were unlikely. Therefore, Contact is currently investigating options to leverage its skills and experience to grow in international markets. Investigations into options are at a reasonably early stage with an update expected to be provided at the company's full year financial results in August.

[Media release](#) [Investor presentation](#)

Hawkins strengthens offshore drive through two geothermal power projects in Indonesia

Hawkins has been a founding member of the Geothermal New Zealand initiative. Hawkins successfully completed the Kawerau geothermal power station, Ngatamariki steamfield and Nga Awa Purua geothermal power station. Lumut Balai and Karaha geothermal power stations in Indonesia, owned by the state-owned Pertamina Geothermal Energy, are the latest projects to be secured by Hawkins, in joint venture with Indonesian partner Banguan Cipta Kontraktor (BCK).

Lumut Balai is in South West Sumatra on a remote site some 1300m above sea level. Hawkins has been appointed to design, procure and construct the civil and building services work to the power plant and for the installation of the Toshiba supplied power plant equipment. The contract includes commissioning of above ground steamfield equipment. The project period is 24 months from January 2015.

The Karaha power plant is located in West Java, 1200 m above sea level and the work is design, procurement and construction services to house the Alstom supplied power plant equipment as well as commissioning the above ground steamfield equipment. The project will last 23 months from January 2015.

A number of New Zealand design consultants have been involved with the projects and Hawkins will look to continue involving New Zealand suppliers and subcontractors where appropriate.

<http://www.hawkins.co.nz/news-media/hawkins-strengthens-offshore-drive-securing-two-geothermal-power-projects-indonesia>

Russell James 1925 - 2014



Russell James was born in Barry, South Wales (United Kingdom), on 4 May 1925. He was educated at Barry County School, after which he took on an engineering apprenticeship in Gloucestershire and studied aircraft engineering at night-school. In 1952, he immigrated to New Zealand and joined the Chemical Engineering Section of the Dominion Physical Laboratories (later to be incorporated into the DSIR - the Department of Scientific & Industrial Research) based in Wellington. He continued his education by lecturing on Applied Thermodynamics and the Theory of Machines at the Polytechnic Institute: as he said “the best way to learn a subject is to have to teach it – keeping one step ahead of your students”.

In 1956, Russell transferred to DSIR’s Geothermal Research Centre at Wairakei, near Taupo, to assist with solving the multitude of chemical and engineering problems associated with developing the Wairakei geothermal resource. At this time, the NZ Government had committed to building a 192 MWe power plant, and as Wairakei was the first liquid-dominated geothermal resource in the world to be developed, understanding the transmission of two-phase steam-water mixtures was of high priority. At the time it was thought that transmission of steam-water mixtures through pipes might not be feasible because of “water hammer”, but Russell was able to show that this was not necessarily the case.

When Russell started working at Wairakei, about ten large diameter deep wells had been drilled and some of these could produce more than 10 MWe equivalent power. Developing a simple, yet accurate method to test such large two-phase wells was another project priority. Russell soon developed a passion for well flow measurement and had the luxury of being able to “play” with several of the powerful, high-pressure wells for his investigations. This led to the development of the “James Lip Pressure” method of determining the flow rate and fluid enthalpy of a geothermal well. Despite the incredible developments in flow measurement technology since 1960, this method remains the most efficient way to test large geothermal wells – although it is still viewed with a degree of scepticism by some engineers due to its simplicity!

The New Zealand geothermal programme was suddenly curtailed in 1971, and Russell moved on to international work advising on United Nations geothermal development projects. In 1970 he spent six months in Turkey and El Salvador, and returned to Turkey for another five months in 1971. From 1973 to 1975 he was an on-call consultant for the Comisión Federal de Electricidad of Mexico, and made many visits to various Mexican geothermal fields. In 1974 he spent five months working for the United Nations in Chile, and in 1976 for three months in Central America. Later Russell was involved with development of several geothermal resources in Indonesia, and in Costa Rica.

During his career Russell published numerous technical papers and DSIR Geothermal Circulars. He lectured at the Geothermal Institute (University of Auckland, NZ) and at the universities of California and Hawaii, and at the United Nations University in Reykjavik, Iceland. Russell was awarded the Cooper Medal by the Royal Society of New Zealand in 1968, the Angus Award by the Institute of Professional Engineers of New Zealand (IPENZ) in 1970, and the prestigious Special Achievement Award by the Geothermal Resources Council in 2002. He retired from the DSIR in 1989, but continued to provide geothermal advice in several countries.

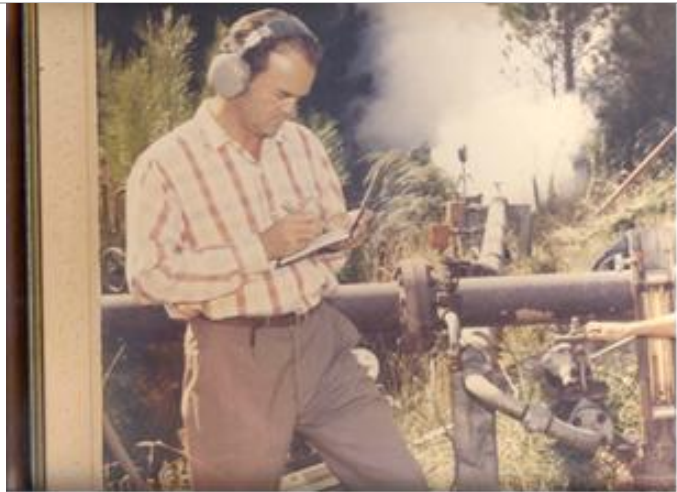
Russell was never at a loss to explain his theories, and his straightforward, pragmatic approach to assess and resolve the many difficulties encountered when developing geothermal resources has endeared him to engineers around the world. Those of us who knew him professionally will continue to be reminded of his contributions every time we hear the magic words, “The James’ Method”.

Russell’s interests were not limited to geothermal engineering. He enjoyed debate, hiking, classical music, world travel, and was active in the Taupo theatre group for many years. He was a voracious reader, with an extensive personal library; and knowledgeable on a multitude of subjects, ranging from cosmology to global

politics, Shakespeare's plays, and Conan Doyle's Sherlock Holmes, whose scientific methods in mystery solving he particularly appreciated. For several years after Russell retired, he was involved with the "University of the 3rd Age", and led courses on current international events and astronomy.

Russell James died peacefully in Taupo, New Zealand, on 21 December 2014. He is survived by two sons and his wife, Pamela.

Paul Bixley, Trevor Hunt and Mike Mongillo



Information

NZS 2403 Code of Practice for Deep Geothermal Wells – NZS2403:2015 will be released as part of the WGC. Our thanks to Paul Bixley and the team for revising NZS2403:1991 Code of Practice for Deep Geothermal Wells. A plain English editing task was undertaken by Waiora Design as part of finalizing the code. This work was sponsored by Contact Energy Limited and Mighty River Power. The code will be available for purchase through the Standards New Zealand web site <http://shop.standards.co.nz/catalog/ics/> insert 2403:2015.

Subcommittee on Health and Safety – With reforms of Health and Safety, the NZGA board is of the view that a forum for members to discuss aspects of the changes could be beneficial and to that end a working group is being set up focused on Health & Safety. This group will include Kevin McLoughlin, Shanon Garden and Mark Green, who expressed interest at the February Board meeting and you are welcome to join. If you would like to join this group please email or connect with Mark Green Mark.Green@contactenergy.co.nz with Brian White ccd in on the email. The first date for the forum to meet will be set after the WGC.

NZ Geothermal Workshop – The Workshop in Auckland in November 2014 was another well-organized and well-attended event. Congratulations to Ralph Winmill on being awarded the NZGA Innovation Trophy for his paper on the lessons from Contact Energy's drilling campaign. The innovation trophy is shown to the right and is an annual award. The 2015 Workshop will be in Taupo in November this year with details coming soon.



Workshop on Geothermal Specifications – Malcolm Grant has represented New Zealand at a workshop on geothermal specifications in relation to defining geothermal resources and reserves. The Workshop was held in Bonn, Germany, and there has been a recent follow up meeting in Washington DC.

Malcolm Grant Nominated for Fellowship with the Royal Society of New Zealand – Paul Bixley has led a process for nomination of Malcolm Grant for a RSNZ fellowship. Nomination has been made by Brian Carey as NZGA President and Patrick Browne as a FRSNZ.

Action Plan Progress – The Action Plan represents the proactive efforts of the Association on behalf of industry. For a summary of current status, see here http://www.nzgeothermal.org.nz/Publications/Industry_papers/Current-Action-Plan-Status-as-at-25November2014.pdf

Some miscellaneous matters from the 27 February Board meeting –

- Board has approved an annual review of accounts.
- NZGA/IGA Affiliation Agreement will be revised to avoid confusion over who is counted as a member.
- Privacy guidelines are being formalized to retain the tight control already placed on member details. Details are passed to IGA so that NZGA members can become IGA members, while only member names are provided to the University of Auckland where the organisers offer NZGA member discount to the NZ Geothermal Workshop.

NZGA Membership Details

NZGA currently has 344 members. Welcome to the following new members:

- **Robert Fullerton** – of Beca
- **Phil Brown** – of Brackenridge Construction
- **Cath Andrews, Andrew Durant, Matt Sharp** – of Callaghan Innovation
- **Catherine Daniels, Peter Kane, Chris Morris, Daniel Pearl, Cyril Rundle** – of Contact
- **Brendan Trawen** – of Department of Environment & Conservation (PNG)
- **Matt Wiley** – of ENGEO
- **Chris Webster** – of Geo Demo Group
- **Nick Macdonald, Fiona Sanders, Mark Simpson** – of GNS Science
- **Ross Sinclair** – of Jacobs
- **Milly Bierre** – of JRG Energy Consultants
- **Kristian Nelson** – of McConnell Dowell Constructors
- **Mohsen Askari, Peter Franz, Jaime Quinao, Steven Sewell, Paul Siratovich, Maxwell Wilmarth** – of Mighty River Power
- **Maxine Lahan** – Mineral Resources Authority (PNG)
- **Dan Hikuroa** – Nga Pae o te Maramatanga

- *See who our Corporate and Institutional Members are [here](#).*
- *More details on membership benefits, fees and application forms are available here on the [NZGA web-site](#).*
- *NZGA operates 8 Interest Groups – find out how you can get involved [here](#).*

- **Lara Taylor** – Ngati Tahu Tribal Trust
- **Tom Powell** – Powell Geosciences
- **Peter Faulkner** – Pukeroa Oruawhata Trust
- **Jessica Wong, Rosalind Julian, Monika Ko, Stephen Rowbotham** – Quest Integrity
- **Mark Horwell** – Switchfloat
- **Adele Barsdell, Ngahihi o te Ra Bidois, Che Charteris, Sarah Hepi-Te Huia, Wikitoria Hepi-Te Huia, John McRae, Rangimarie Ngamotu, Tiwana Tibble, Stephen Panckhurst** – Tauhara North No2 Trust
- **Justin Pogacnik** – The University of Auckland
- **Josh Anderson, Kerry Ellem, John Gilliland, Steven Slothouwer** – Western Energy Services
- **Gareth Penhale**
- **Natalia Zepeda**

NZGA relies on membership fees in order to exist and to promote and provide services to the sector. The support of our members is much appreciated. Thank you.

EVENTS – 2015

19-25 Apr 2015:	World Geothermal Congress 2015 : Australia - New Zealand
Venue:	Melbourne Convention and Exhibition Centre
Theme:	"Views from Down Under - Geothermal in Perspective"
More:	WGC 2015 flyer ; WGC website
November 2015	New Zealand Geothermal Workshop
Venue:	Taupo (details to come – check website)

HERA Event - Above Ground Geothermal Technologies Workshop – 30th April, Auckland

HERA will be hosting an AGGAT Global Conference on 30th April at the Sky City Convention Centre to follow from the World Geothermal Congress. For more details see here http://www.hera.org.nz/Story?Action=View&Story_id=2200



NZGA produces this Newsletter primarily for the benefit of its members and also for the wider public. We are happy for the material in the newsletter to be used but ask that the NZGA Newsletter be acknowledged as the source. We are always keen to promote our members and their project activities – please contact us with your news, vacancies or useful materials.

KEEP IN TOUCH –

If your contact details change – let us know here - [Executive Officer](#)