ISSN 1178-5888

CETANZ

Civil Engineering Testing Association of New Zealand

CETANewZ

The official newsletter of the Civil Engineering Testing association of NZ

Issue 008, Christmas 2009

In this issue...

From the Chair...

Well this year has certainly been interesting. Fortunately our learning on technical uncertainty in previous years has set us up well for understanding that our business world grapples with uncertainty too, I am certain 2009 has shown us that!

Our industry has not been able to avoid the effects of a world recession and we have seen some changes throughout our ranks. Every business will have been affected whether positively or negatively and many commentators are predicting to see some light at the end of the 2009 tunnel. CETANZ has still been progressing in many areas thanks to the hard work of our committee and working groups. We certainly appreciate the hours spent on developing our industry when our personal work has become more demanding. It is a reflection of the great personal attitudes exhibited by these committee members and commitment by their employers.

There have been many highlights this year in the CETANZ calendar and I hope you spend a quiet moment reflecting on these achievements whilst reading this newsletter. The Technical Issues group have been inspiringly led by Jayden Ellis to cover many areas such as proficiency testing and standards updates to mention just two. The Society Activities group led by Jennie Dingley has been working on regional activities with visit to the Tauranga Harbour Link but the biggest project being the 2010 conference , "Careering Ahead" which will be convened by Michael McGlynn. The Careers and Training group led by Eric Paton have zoomed ahead with a qualification in conjunction with Infratrain, this should be well developed for presentation at the 2010 conference.

CETANZ has some great initiatives ahead and we look forward to a new website, an industry qualification, regional meetings, another great conference and some technical training sessions for our members.

We look forward to helping you, our members, to have a better industry through our continuing work together.

I hope you have some time to relax over the coming holiday season to ready yourself for 2010. I wish you and your families all the best for the coming year.

Paul Burton—Chair of CETANZ

From the working groups | Technical

NZ Vib Hammer Test Method Review

Last year CETANZ carried out a nationwide interlaboratory study or precision experiment on the vibrating hammer compaction test method to determine variance within and across laboratories (repeatability and reproducibility exercise) on a number of granular materials and water contents, and the variances where very high compared to overseas levels. However, it wasn't easily determined where these variabilities were occurring, maybe apart from different vibrating hammers being used.

CETANZ, NZTA and RNZ have formed a working group to start the next stage of the review. The plan is to develop a Ruggedness test.

Ruggedness testing are 2k factorial experiments (mainly performed in USA) and appear to be the latest process in setting up a new test method, or determining those ***factors that significantly influence*** a test method and how closely the factors need to be controlled.

There are two ASTM standard practices that cover conducting ruggedness tests and procedures for detecting sources of variation: ASTM C 1067-00 Conducting a Ruggedness or Screening Program for Test Methods for Construction Materials and ASTM E 1169-07 Conducting Ruggedness Tests.

To help with the design, analysis and management of the evaluation, the working group will be approaching universities for proposals. It is envisaged that a student lead research project involving a civil laboratory will produce the information needed by our industry to effectively review and rewrite the test method. Work should commence early next year.

CETANZ Proficiency Testing Program

Weathering Quality Index - As some of you will know the Weathering Quality Index proficiency samples will be distributed in the next week or two, with a final report being available early next year.

Soils – Liquid Limit, Plastic Limit, Plasticity Index and Linear Shrinkage – John Evans from OPUS Auckland has volunteered to design and organise a national proficiency covering these tests. Keep an eye out for a Request for those Interested in taking part.

PSV – Nothing to report.

Bitumen - Martin Clay of Fulton Hogan Canterbury Laboratory has volunteered to design a proficiency trial for Max Specific Gravity and Density, Bulk SG and Density of Non Absorptive Compacted Bituminous Mixtures, % Air Voids, Preparation of Marshall Blocks, Stability and Flow and Bitumen Content by extraction. The scheme is currently being reviewed by the technical group, request for those interested in taking part should appear next year

NZ Standards Review

Update
The CETANZ standards survey is now completed and has been distributed. Results indicate that the membership prefer CETANZ to concentrate efforts around review of NZS 4407 & NZS 4402 test methods.

Standards NZ have been consulted – they agree in principal that CETANZ, RNZ and the AQA along with other possible stakeholders could keep costs down by carrying out most of the review work outside of normal Standards NZ process. Standards NZ also agree to provide this working group with an electronic word version of the documents to facilitate the review process.

The final drafts will still need to be presented to Standards NZ and they will need to form a committee to complete. But if we have enough representation on the working group, it is likely that Standards Review committee costs will be kept to a minimum.

CETANZ, RNZ and the AQA will meet in February 2010 to start planning.

Industry Participation

Jayden has been asked to represent CETANZ in the NEW Technical Pavements Group" initiated by NZTA . The aim of the Group will be to assist with the revision of national aggregate specifications such as TNZ M/4, M/3, B/2 and the Supplement to Pavement Design and Rehabilitation Design. This group will replace the Stabilisation Working Group (SWG) which has been working for NZTA to create new national specifications around Insitu and Pugmill Stabilisation/ Modification. Jayden is joined by Jason Lowe of the AQA, and Graham Salt of T&T. The original members of the SWG will make up the rest of the New Group and comprises NZTA, RTA's, RNZ members (FH, Downers, Higgins, Leighton's, Transfield, Highway Stabilisers) various consultants, researchers and material suppliers.

Technical Support

A joint letter from CETANZ and IANZ has been sent to Standards NZ and the Readymix Association of NZ, informing them about the current issues around rubber capping in the NZ Standard NZS 3112:Part 2: clause 4.4.3.1

i.e. *The inclusion of the word "nominal" and the flexibility of the tolerance is creating confusion and uncertainty in the testing industry. At present IANZ is requiring any Laboratory that uses rubber caps with a hardness outside of 50 to 65 hardness to include reference to the deviation from standard requirements on their test reports. Supply of 50 to 65 hardness caps has proved difficult in some instances……* And also that …..

presently there is anecdotal evidence that caps with a hardness of 45 to 60 are causing erroneous results from time to time especially for concrete with strengths of 50 to 80MPa. It appears that the rubber caps are bulging from the restraining device and in some cases automatic testing machines are stopping prematurely.

CETANZ and IANZ have asked Standards NZ to carry out an immediate review of this clause and communicate any change via amendment.

Jayden Ellis
CETANZ Technical Group Leader
jse@stevensons.co.nz
info@cetanz.org.nz

From the working groups | Careers & Training

The Training and carers group along with InfraTrain and the IAG have made tremendous progress on the Qualification which will hopefully see the launch of it in September 2010. The IAG have been meeting in Wellington over many months and with the final sign of was on the 17th Dec 09.

What this means is the IAG have agreed on 56 unit standards (initially we were looking at about 10 for this year but we seemed to have got through them) and they have to go to the NZQA for approval. Before that happens the NZQA has to agree to our Domain name which is the Civil Engineering Laboratory. This should be done by March. InfraTrain seem pretty confident that this will be finished before we have the 2010 conference which will be a huge benefit for our industry.

The next phase of this project will be to have some technical people assessed by INFRATRAIN to become assessors for this Qualification. If you think you have what it takes to become an assessor then please feel free to contact CETANZ.

Early in the New Year CETANZ will be looking at taking professional photos of different labs around the country and the tests that they do. These photos could be used for the INFRATRAIN work books that the Student would be using.

Merry xmas to all

Eric Paton

CETANZ Careers & Training group leader

Breaking News! — Irish were the first to go wireless

After having dug to a depth of 10 feet last year, Italian scientists found traces of copper wire dating back 100 years and came to the conclusion that their ancestors already had a telephone network more than a hundred years ago.

Not to be outdone by the Italians, in the weeks that followed a Chinese archaeologist dug to a depth of 20 feet, and shortly after, a story in the *China Dayree Times* read: “Chinese archaeorogists, finding traces of 200 year old copper wire have concruded that their ancestors already had an advanced high tech communications network a hundred years earrier than the Itarians”

One week later the *Dublin Times*, a local newspaper in Ireland, reported the following: “After digging as deep as 30 foot in his pasture near Galway on the West Coast of Ireland, Niall Murphy, a self taught archaeologist, reported that he found absolutely nothing. He had therefore concluded that 300 years ago Ireland had already gone wireless...”

IANZ
ENDORSED

The Measurement
& Calibration Centre

MCC is now IANZ endorsed for balances and concrete compression machines.

calibration laboratory

We are also able to offer on site servicing and repair of civil testing equipment.

Contact Brigitte or Tim with enquiries on **09 362 1720** or go to **www.themcc.co.nz**

From the working groups | Society Activities

Conference 2010—From the Conference Convenor

A warm welcome to you all from the CETANZ committee for our conference 2010 "Careering Ahead"

It only seems like yesterday that we all gathered at the Langham Hotel in Auckland for the inaugural CETANZ conference. In fact, it will have been two years when we gather again in Auckland, this time at the Edge Events Centre in Aotea Square on the 23rd and 24th of September 2010.

The CETANZ committee have been very busy since the last conference and have made some great advancements. One of our major achievements is gaining recognisable qualifications for civil laboratory staff so we have used this success as the basis for our 2009 theme of "Careering Ahead"

Work is well underway to deliver another highly interesting, educational conference that will once again bring together laboratory managers, technicians, scientists, local bodies and engineers to listen discuss and share ideas and knowledge. Aside from another interesting and informative line up of papers, we have a fantastic dinner event planned and a field trip to conclude the conference on the Friday afternoon.

This is a fantastic opportunity to meet others in the industry and swap ideas and thoughts. We look forward to seeing you all there again in September – registrations and conference website will be up and running shortly so in the meantime please feel free to contact me with any queries.

Merry Christmas

Michael McGlynn
mmcglynn@geotechnics.co.nz

Situations Vacant

Are you an energetic person who would enjoy a job that combines outdoor fieldwork, scientific testing and the chance to learn something new every day?

Embark on a career that has plenty of scope to progress and offers on-the-job training and support as you develop your skills as a Geotechnical Technician and beyond.
You'll have an interest in:

- Science
- Geology
- Engineering
-

And a tertiary qualification in one of these fields would be an advantage, but not essential.

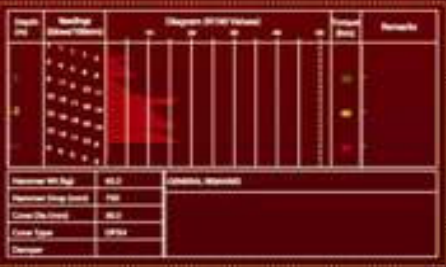
Based in Auckland CBD, you'll work on a variety of projects involving analytical laboratory testing, geotechnical fieldwork and other general duties and will receive plenty of guidance and training from our small friendly team.
This position requires a "hands-on" approach and has the excellent potential for career development.
Please apply online or for further information please contact:
Victoria Farrell
Recruitment Advisor
Beca Infrastructure
on 09 309 2883 or email victoria.farrell@beca.com

Beca

Geotechnical Sampling and Testing Rig

- Compact & manoeuvrable with a quick set up time
- 100mm Ø samples in clear plastic liner for easy logging & sub-sampling
- Ideal for sampling to depths of 5 to 8m
- Excellent sample recovery
- Stepped down sampling from 100mm Ø to 56mm Ø
- Sample catchers for loose material or soft soil
- Sampling in soils to very weak rock, N<35
- Concrete & Asphalt coring attachment
- Dynamic Probing (Fixed cone)

- Dynamic Probing (Fixed cone)
  - Dynamic probing to 30m in suitable ground
  - Excellent for locating voids, or obstructions
- Standard Penetration Test (SPT)
- Instrumentation installation – piezometers, gas & water wells



Dimensions

Working height	2.85m
Width	0.8m
Overall height mast down	1.5m
Overall length	2.7m
Total weight	1300kg plus a 7000kg reaction load
Terrier Rig ground bearing	33 kPa

GEOTECHNICS LTD
23 Morgan Street, Newmarket, Auckland 1023
PO Box 9360
Newmarket, Auckland 1149, New Zealand

p. +64 9 356 3510
f. +64 9 356 3511
e. enquiries@geotechnics.co.nz
w. www.geotechnics.co.nz

GEOTECHNICS

How to get paid | By Steven Anderson—Geotechnics Ltd

As testing companies, all of us get caught up in the excitement of winning work and coming up with technically good results. We also expect to get paid for what we do and promptly.

Unfortunately some of our customers do not have the same point of view. They too are enthusiastic when it comes to requesting work, but some are not so enthusiastic when it comes to paying the bills. Some of the less scrupulous customers look for holes in the quote or testing service to get out of paying.

Here are five rules based on years of experience to assist getting paid:

Rule No. 1: Get it in Writing – The Contract Paper Trail

We all hate paperwork, especially for small jobs. Paperwork will not guarantee payment even if your customer has signed a contract. This because some of the less scrupulous will say "so take me to court" knowing the cost of litigation can be too high to recover a small amount.

A) Scope of Work – What you are going to do

Clearly indicate what you plan to do.
Example: 4 x unconfined compression tests on undisturbed samples. If you left out the "undisturbed samples" bit, they may ask you to perform testing on a remoulded sample at optimum water content. This would imply a compaction test was required plus remoulding the sample into a mould, all additional costs.

B) Scope of Items Not Priced - What you are not going to do

Often when pricing work the specification implies or calls for tests outside your scope, then state you are not pricing them rather than just leaving them out.

Examples:

- Traffic control is excluded
- We have not priced for services location
- All consents required are excluded
- Testing hazardous samples are excluded

C) Identify Who is Paying The Bill – the person paying the piper calls the tune.

It is a simple question, "Who is going to pay the bill?". The rule of thumb is that the person paying can request the work, unless the person has authority from the customer to do this. It is reasonably common occurrence for someone to ask for testing work, then upon receiving the invoice to ask that it should be sent to someone else. The advice here is DO NOT do this until you have agreement from the other party, because the person who first asked for the work still has an obligation to pay.

D) Don't Forget GST

Always remember to state whether gst is included or excluded.

E) Terms and Conditions – Get out of jail clauses

Terms and conditions help limit your liability should things turn to custard. The two key points are limiting your liability and indemnity.

Limiting your liability reduces the claim someone can have against you. An example would be to limit your liability to 10 times your invoice value.

Indemnity is where you have a voluntary obligation under contract. Some people want to indemnify themselves under any claim. In other words you cannot chase them for their costs no matter what they do. Always avoid signing a contract with this wording.

F) Written Agreement – The Contract

Where possible use a standard written agreement which will cover all the points above. A signature from your customer agreeing to the work is the best paper trail. Failing that send a copy to your client, if that is not possible send an email confirming the work request. If these fail to reach your customer make a record on a note pad of the discussion and the agreed request. Make sure you file it with the work

Rule No 2: Invoice smartly – Invoice Immediately

The sooner you get the invoice to your customer the sooner you will get paid. If you send an invoice with your report you are likely to get paid earlier.

If you are working on a job that is running over a few months, it is a good idea to invoice by progress payments monthly on the work completed in that period. It also gives you a good indication that they are going to pay

Rule No. 3: Persistence Pays – Chase All Debtors when Overdue More than 1 Month

Common business practice is to pay on the 20th of the month following receipt of an invoice. After that time they are collecting interest on the money they owe you. This is where "persistence pays" literally. The "squeaky wheel gets the most oil", in other words keep ringing and you are likely to get paid first.

Often if a company has cash flow difficulties, being persistent makes sure you get paid before they go into receivership.

Rule No. 4: Manage Risky Customers

Domestic Customers

Domestic customers can be poor payers, therefore it is better to ask for payment before you release or reveal results. Sometimes they will get results they do not want to see and then consider them valueless. An example of this is the cracked driveway. They ask for compressive strength on the concrete cores only to find they meet the required strength –which means it will not help their claim.

Slow Payers

If they are slow payers and an infrequent customer ask for cash up front. If they are slow payers but a big customer and have always been like this, just keep applying Rule No. 3.

Rule No. 5: No Surprises – Variations

Do not invoice a client for anything you have not had prior agreement. This is annoying for them and may hold up payment for all of the work while trying to sort out one item.

Contact and discuss the variation with your client, if they accept it, include it in the main invoice. If it is still in dispute, invoice the variation separately, this way only the variation invoice is held up.

Summary

Unfortunately there is no guarantee that you will get paid, as some customers go into receivership and others had no intent of paying anyway.

If you are careful with the paper trails and processes in the rules above you will get paid quicker and keep your debtor levels down.

Member Profiles—Kent Dalziel | Geotechnics

Name: Kent Dalziel
Title: Projects Manager – Land Development

Who do you work for and what do you do?

I work for Geotechnics and manage the Land Development Team, overseeing a number of large and small projects throughout the wider Auckland Area.

How will you spend xmas?

Family is all overseas and I will be working from the 27th Dec, so I'm off to the family farm in Stratford, New Plymouth to live the dream in Taradise for 4 days.

If you could ask Santa for one thing what would it be?

$20,000 and 6 months off to travel around South America. (Don't worry Steve, I'm still broke since Indonesia)

What is the best piece of advice you've been given?

From my father at a very young age, "make sure you take a good hard look at her mum, if she's an old battle axe, get rid of her"

What's your ideal summers day?

In the water on the west coast at sunrise, surf till fatigue or hunger takes over, tell mates in town how good it was, turn cell phone off. Eat a cooked breakfast, get a few things done around the caravan before another surf, golf or fish till dusk. All washed down with a few cold ones around the barbeque with friends. Sleep. Repeat.

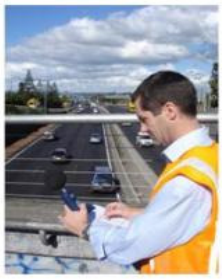
Independent Testing Services

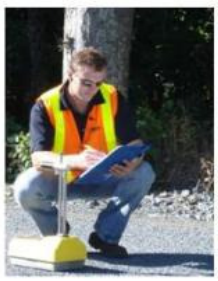
THE AUCKLAND LABORATORY

The Auckland Laboratory rigorously maintains an **independent** and **unbiased** testing facility for our clients as part of our IANZ requirements where: accuracy, confidentiality and customer service are of the utmost importance to us. We have a broad range of clients in both private and public sectors and are happy to assist even if only for **impartial advice**.

The laboratory is **IANZ accredited to NZS/ISO/IEC 17025** for mechanical testing under the areas: 4.01 Aggregate, 4.02 Bituminous Materials, 4.08 Soils, 4.15 Operations by Seconded Personnel and 4.20 Pavement Testing; the scope covers a wide range of national and international test methods. The separate specialist laboratory in Tauranga offers a comprehensive suite of performance assessment and test methods for emulsions and binders.

We are available for **Research and Development** work for both design of and assistance with projects for clients. We have the expertise to arrange and provide advice on a wide range of materials testing and assessment requirements, not covered on our standard scope, either in house or through collaboration with other test facilities, these could be: accredited / non accredited testing or **bespoke options** designed specifically for the client. We are happy to discuss individual requirements.





For more information or to arrange a visit please contact either, Phil Archer, David Aubrey or Howard Jeffery-Wright at *The Auckland Laboratory*—

Phone: Office +64 (0) 9 580-2494

Mobile: Howard +64 (0) 276 837 681
David +64 (0) 272 427240
Phil +64 (0) 272 434813

Email: Aucklandlaboratory@downerediworks.co.nz

new zealand accredited laboratory

Proudly Supporting

CETANZ
Civil Engineering Testing Association of New Zealand

Geotechnics

Field testing equipment

We can supply you with all your field equipment requirements from Nuclear Density Meters to Scala Penetrometers. For sale and hire **call our friendly team on 09 356 3510.** If we don't have it we will tell you who does.

Heavy Duty Scala Penetrometer

- Available in Standard or Heavy Duty models
- Heavy Duty scala has components made from higher tensile material. Available in Heavy Duty upper assembly only or Heavy Duty to 1 m
- Suitable for investigations up to 5 m (material dependant)

Auger

- T-handle, extensions and Auger head in a canvas carry bag
- Standard auger head is 50 mm Ø
- 70 mm and 100mm heads also available

Geotechnics Impact Tester

- Meets internationally recognised ASTM and AS standards
- Extremely useful tool which can be used on wide range of construction materials
- Simple correlation from the impact value to an inferred CBR

Shear Vane - Geovane

- Determines strength of cohesive soils
- Reading in kPa and Nm
- Measures up to 240 kPa
- 19 mm or 33 mm vane blade for different strength materials
- Widely accepted engineering tool

Nuclear Density Meter

- Quickly and accurately measures density and moisture content of soils and aggregates
- Can be used for asphalt thin lift measurements
- Plateau tests to determine ultimate number of roller passes
- Automatically calculates moisture, air voids and % compaction
- Simple to use
- Full assistance on any use, safety or licensing requirements

GEOTECHNICS

Auckland p. +64 9 356 3510 | **Tauranga** p. +64 7 571 0280 | **Wellington** p. +64 4 381 8584

enquiries@geotechnics.co.nz | www.geotechnics.co.nz

The Measurement & Calibration Centre

Auckland p. +64 9 362 1720

www.themcc.co.nz

SALES
TESTING
TRAINING
CALIBRATION

Standard Alert!

The following standards are up for review…….or have been updated.

Overseas Standards of Interest

BS EN ISO 5667-15:2009 Water quality. Sampling. Guidance on the preservation and handling of sludge and sediment samples
Supersedes BS 6068-6.15:1999

ISO Technical Product Specification Standards
ISO has launched a compilation on CD-ROM of its entire collection of Technical Product Specification (TPS) Standards, which are essential to manufacturing on a global basis, and provide a common language for product and contract specification and other communication along global supply chains.

New Zealand or Joint NZ Standards

Road Traffic Noise – New and altered Roads Committee: P6806
Project Manager: Stuart Ng
Estimated Publication Date: January 2010

Want more info ….. go to www.standards.co.nz and click on the "Public Comment" Tab. Here you can download the draft version for an 8 week period and submit your comments.

Comments: The P6806 committee met to discuss the public comments received on the draft Standard. A further meeting was held in October and final editing is now underway before ballot occurs. Publication is now expected in January 2010.

DZ 4404 Land development and subdivision

- This draft Standard is a revision of NZS 4404:2004 *Land development and subdivision engineering*.

Public comment on this draft closes on 5 February 2010

.

www.cetanz.org.nz

Fulton Hogan

A member of the Fulton Hogan Group
www.fultonhogan.com

AUCKLAND LABORATORY SERVICES

Who are we?

The Fulton Hogan Auckland Laboratory is a test facility accredited by International Accreditation New Zealand (IANZ) in the field of Mechanical Testing and Water Testing level 2. The Laboratory is a subsidiary of the Fulton Hogan Group.

Where are we?

The laboratory is situated within the Fulton Hogan Auckland complex at Reliable Way, (off Leonard Road), Penrose, Auckland.

Samples may be delivered or dispatched to the above location or alternately, we can take samples from your site on your behalf.

A test facility for undertaking
Asphalt / Bitumen, Aggregates, Concrete, Soils, Water & Construction Quality Control

Contact us at:

Fulton Hogan
Auckland Laboratory Services

Private Bag 11-900
Ellerslie
AUCKLAND (NZ)

Telephone *09-5804664*
Facsimile *09-5792337*
Free phone *0800 Laboratory*

Ewan Cameron (Manager)
Ph: 09-5804618
Mobile (027) 2427484

Email:
ewan.cameron@fultonhogan.com

See our scope at
www.ianz.govt.nz/ianz/directory/index.htm

An IANZ Accredited Test Laboratory

Broad Testing Capability:

- *Asphalt Mix Design and Quality analysis*
- *Soil Classification Tests*
- *Soil/ Aggregate Compaction Targets (MDD,OWC)*
- *Soil Strength/bearing Tests*
- *Insitu density testing of Soil, Aggregate and Hotmix Asphalt*
- *Characteristics, Compliance and Compaction Control of Crushed Aggregate Products*
- *Bitumen / Emulsion analysis*
- *Earthworks Compaction Control*
- *Pavement Testing (Benkelman Beams, Nuclear Densometer)*
- *Site Investigation*
- *Materials Sampling*
- *Water Testing*
- *Statistical Control*
- *E2 Bitumen distributor compliance testing*
- *Fresh / hardened concrete testing*

What do we do?

The scope of testing carried out at the Laboratory includes Asphalt, Aggregate, Soils, Concrete, Bituminous materials, Asphalt mix design, production control testing of construction materials such as roading and asphalt concrete aggregates. We also offer a range of construction control testing services such as insitu density, pavement deflection and classification tests for soils. We have recently opened our new water lab for drinking water testing and we are IANZ accredited to level 2. The services we provide are available to a broad range of clients such as construction and civil engineering companies, consulting engineers, and manufacturers.

What are our Objectives?

To provide a Quality Service to our clients which is driven by efficiency, accuracy and value, focusing on fostering long term partnerships and meeting our clients' needs by using innovative methods with effective feedback and pro-active communication.

Test Focus | The benefits of calibration—Brigitte Sargent, MCC Ltd

Measurement of objects and calibration of equipment ensures you are obtaining the best results you can. It can keep you on the right side of a legal battle and allows you to do your job and report with confidence. Similar to inter-lab testing, calibration keeps everyone on an even playing field and gives a competitive advantage over the "cowboys" who choose not to calibrate

Calibrating your equipment allows you to provide your clients with a quality service, which hopefully in turn will provide you with more income. It can also reduce the financial risk to your business.

The How of Calibration:

The art of calibration & measurement (yes it is an art) can only truly be appreciated by spending time in an accredited laboratory or watching a calibration expert in action. What the end user may see as a basic set of callipers to measure the diameter and height of a cylinder, a calibration technician views as a two hour project of cleaning, inspection, measuring, re-measuring, re-measuring again, checking and re-checking.

Some definitions:

Calibration: something that must be done on a regular basis to ensure your equipment is giving correct readings/information as per its design/specification. The piece of paper issued after said calibration, commonly called a certificate or report, is also a very good bottom covering device that allows you to say with confidence "it's not my fault". The latter becomes very important when required to stand up in an official environment, such as court.

Measurement: The process of checking an objects dimensions within a fraction of a millimetre which is not detectable to the human eye. Most useful when paying a fortune for a piece of equipment to ensure it has been made within the very tight (and often very impractical) standard to which you have to use the equipment for.

Calibration Technician: A person who possesses an unusual amount of patience and has a passion for precision. Must also be good at maths and understand the dreaded "uncertainty of measurement".

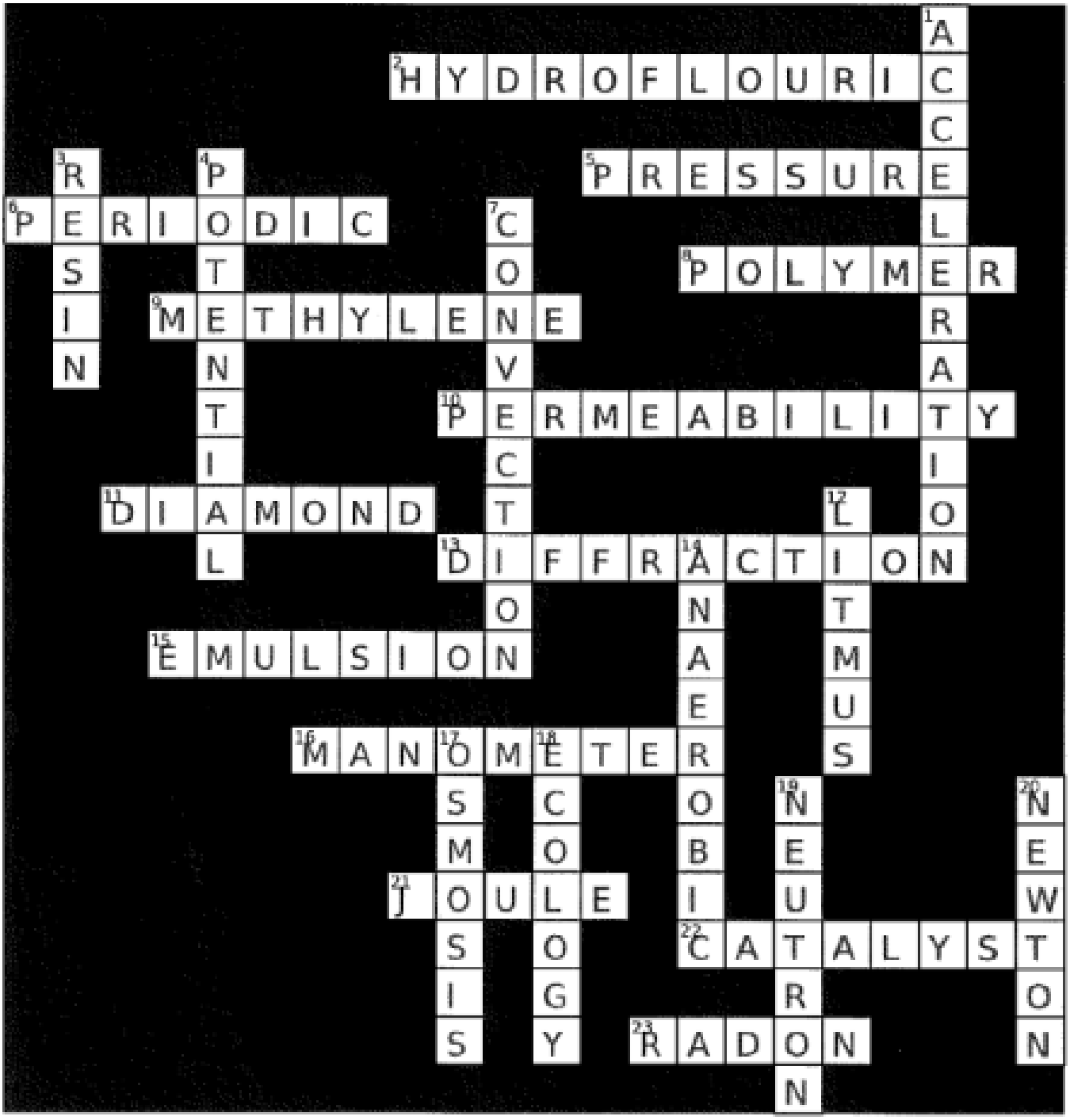
Failed Calibration: The dis-heartening realisation that after hours of cleaning, measuring and checking, the item in question does not meet specifications and needs repair or replacement

From the editor...

We're always on the lookout for something interesting for this part of the newsletter. If you have any relevant articles that relate to testing then fire 'em through to...
info@cetanz.org.nz

Crossword corner....

Answers from last issue



Dementia Quiz—Thanks to Portly Griffiths—Fulton Hogan

Below are four (4) questions and a Bonus question to test your perception, reasoning and the quickness of your logical processing.

They are stated simply so you should try to answer them instantly.
To assure the accuracy of the results, you should not take your time, but instead, answer each of them immediately.

Let's find out just how clever you really are....

First Question :

You are a participant in a race. You overtake the second place person. What position are you in?

Answer : If you answered that you are first, then you are absolutely WRONG! If you overtake the second place person and you take his place, YOU are in second place!

Try not to mess up next time. Now answer the second question, but don't take as much time as you took for the first question, OK?

Second Question :

I f you overtake the last person, then you are...?

Answer : If you answered that you are second to last, then you are WRONG again. Tell me Sunshine, how can you overtake the LAST person??

Third Question :

Very tricky arithmetic! Note: This must be done in your head only. Do NOT use paper and pencil or a calculator.
Try it.
Take 1000 and add 40 to it. Now add another 1000, now add 30. Add another 1000.. Now add 20. Now add another 1000. Now add 10. What is the total?

Did you get 5000?

The correct answer is actually 4100..

If you don't believe it, check it with a calculator! Today is definitely not your day, is it?

Maybe you'll get the last question right... Maybe...

Fourth Question :

Mary's father has five daughters: 1. Nana, 2. Nene, 3. Nini, 4. Nono, and ??? What is the name of the fifth daughter?

Did you Answer Nunu? *NO!* **Of course it isn't.**
Her name is *Mary* **! Read the question again!**

Okay, now the Bonus round,
i.e., a final chance to
redeem yourself:

A mute person goes into a shop and wants to buy a toothbrush. By imitating the action of brushing his teeth he successfully expresses himself to the shopkeeper and the purchase is done.
Next, a blind man comes into the shop who wants to buy a pair of sunglasses;
how does HE indicate what he wants?

It's really very simple
He opens his mouth and asks for it...