



CETANZ

Civil Engineering Testing Association New Zealand



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UPDATE FROM THE CHAIR

Danny Wyatt

Hello All,

What a year this has been, we are all sick of hearing about it but Covid has well and truly sent our lives into a tailspin.

No overseas travel, sometimes no national travel, sometimes no travel out of/ into or through the City of Sails. For me it meant that most of my activities that can only really occur in April were bought to a halt.

Big business and small business took an unexpected pause, project dates were extended and the future was very uncertain for all. Our industry appears to be one that will come out the other side not too bad now that the future is looking brighter World over.

The effects of this uncertainty and the mental toll it has taken on people is only just starting to become apparent now so if you feel that someone is acting different to normal, make sure to ask them if they are O.K.

We have continued to follow up with Government on the correspondence and concerns that we expressed at the time of lockdown but this has proved frustrating at times. We will keep you updated if things change.

Ironically, as we get busier for the summer we find ourselves in a position where there is not a great deal of adequately trained or experienced technicians to cope with the expected demand.

I will reiterate what I said in my chairs address for the AGM in saying that the Connexus Lab qualification is now considered essential and is free to attend. I would encourage all CETANZ associated Labs to take advantage of this. At the AGM, we said good bye to some valued contributors from the team and I would like to thank their contribution over many years. I would once again like to single out the efforts and time made by Jayden Ellis over his tenure with us, it was appreciated!

With the departure, there has been the opportunity to welcome to some new members. Please Join me in welcoming to the committee:

- Ben Davidson (BECA)
- Trevor Whitmore (Stevenson's)
- William Gray (WSP)

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Update from the Chair continued...

All of which have made valuable contributions already, I look forward to working with you over the coming year.

- I will head the Technical Group with the close aid of William (watch this space for correspondence on direct transmission NDM's being required on road pavements)
- John King will continue to lead the Careers and Events Group (With the conference being pushed out to 2021)
- Marco Holtrigter continuing to lead the charge with a well engaged CPT group.

It has been great to see the progress made in the last few months by the CPT Group, with a guideline for best practice draft now out for review. This has been made possible by the team working together over multiple meetings so it is great to see that work coming to fruition.

On one final note,

It is fitting to acknowledge and celebrate Dr. John Donbavand and his years of contribution to pavement design, quality assurance and aggregate specifications. John has recently retired from his Lead Advisor for Pavements role at Waka Kotahi where he has made a significant impact in the engineering industry.

John has been instrumental in the endorsement and encouragement of CETANZ and we have appreciated his engagement with CETANZ and presence at conferences and his excellent suggestion that the CPT operators be included in our ranks.

We wish you all the best in retirement!

2019 Workplace Exposure Standards and Biological Exposure Indices

This year, WorkSafe consulted on the proposed changes to the WES of 34 substances and the BEI of one substance (see Table 1). The Table also includes substances consulted on over the last few years including lead, nitrogen dioxide and hydrogen sulphide.

We would like you to note a few important points on WES and BEIs:

1. The WES and BEIs in the WorkSafe Workplace Exposure Standards and Biological Exposure Indices Special Guide are guidance values – not prescribed exposure standards. The intention is for them to be used as risk criteria for health risk assessment and risk management purposes and to be applied or interpreted only by people with appropriate training and experience.
2. The WES and BEI values proposed in 2018 and 2019 are considered by WorkSafe to be health-based WES. This means they are based on minimising health risk and do not take into consideration practicability of achieving or measuring the value. This means that in some instances the current analytical or sampling methods will not be sensitive enough to allow measurement at a level sufficiently below the WES to assess risk with a high degree of confidence. Therefore, what this means is that there will be some uncertainty as to whether risk is suitably managed. As with any risk assessment it needs to consider the uncertainties inherent in the assessment and those uncertainties need to be minimised and managed through good sampling strategy and control. We consider it critical to set a health-based values as risk criteria, so that risk assessment is based on an actual understanding of health risk. Efforts need to be directed to the adequacy of controls rather than merely measuring a level of exposure.
3. We will be undertaking consultation with specific industry groups including those with silica, wood dust, hydrogen sulphide and nitrogen dioxide exposure in their workplaces.

The 11th Edition of the Workplace Exposure Standards and Biological Exposure Indices Special Guide is published on the WorkSafe website [here](#).

Table 1 below shows the WES that have been adopted in December 2019, and those for which we intend changing the WES in three years' time.

Table 1 Changes to 11th Edition of WES & BEI Book

1,3-Butadiene	Accept proposed 8-hour WES-TWA of 0.05 ppm
1,2-Dibromoethane	Accept proposed 8-hour WES-TWA of 0.0003 ppm
2-Methoxyethanol	Accept proposed 8-hour WES-TWA of 0.1 ppm
2-Methoxyethyl acetate	Accept proposed 8-hour WES-TWA of 0.1 ppm
4,4-Methylene dianiline	Accept proposed 8-hour WES-TWA of 0.002 ppm
Acetaldehyde	Postpone change and re-review the proposal in regards to having only a Ceiling limit.
Acrylamide	Accept proposed 8-hour WES-TWA of 0.0015 mg/m ³
Acrylonitrile	Accept proposed 8-hour WES-TWA of 0.05 ppm
Antimony trioxide	Accept proposed 8-hour WES-TWA of 0.1 mg/m ³
Carbon disulphide	Accept proposed 8-hour WES-TWA of 1 ppm
Dichlorvos	Retain the current 8-hour WES-TWA of 0.1 ppm inhalable fraction and vapour and add a <i>sen</i> notation
Dimethyl sulphate	Accept proposed 8-hour WES-TWA of 0.01 ppm
Epichlorohydrin	Accept proposed 8-hour WES-TWA of 0.05 ppm and WES-STEL of 0.15ppm
Ethyl chloride	Accept proposed 8-hour WES-TWA of 100 ppm and remove <i>skin</i> notation
Ethylene oxide	Accept proposed 8-hour WES-TWA of 0.1 ppm and adopt a <i>Skin</i> and a <i>Sen</i> notation
Furfural	Accept proposed 8-hour WES-TWA of 0.2 ppm
Glutaraldehyde	Accept proposed WES-Ceiling of 0.05 ppm and remove the WES-STEL
Glycidol	Accept proposed 8-hour WES-TWA of 2 ppm and adopt a <i>skin</i> notation
Hydrazine	Accept proposed 8-hour WES-TWA of 0.0002 ppm
Hydrogen sulphide	Interim WES-TWA of 5 ppm and STEL of 10 ppm over three years (from date of publication of 2019 WES book) with intention to go to WES-TWA of 1 ppm and STEL of 5 ppm after 3 years
Lead (Biological Exposure Index)	A BEI of 20 g/dL (0.97 mol/L) of whole blood; a suspension (removal) level of 30 g/dL (1.45 mol/L) of whole blood for females not of reproductive capacity, and males; a suspension (removal) level of 10 g/dL (0.48 mol/L) of whole blood for females of reproductive capacity, and those pregnant and/or breastfeeding.
Malathion	Accept proposed 8-hour WES-TWA of 1 mg/m ³ inhalable fraction and vapour
Maleic anhydride	Accept proposed 8-hour WES-TWA of 0.0025 ppm inhalable fraction and vapour
Naphthalene	Accept proposed 8-hour WES-TWA of 0.5 ppm and WES-STEL of 2 ppm and adopt a <i>Skin</i> notation
<i>n</i> -Butyl acrylate	Accept proposed 8-hour WES-TWA of 2 ppm and WES-STEL of 4 ppm
<i>n</i> -Butyl glycidyl ether	Accept proposed 8-hour WES-TWA of 0.25 ppm and adopt a <i>skin</i> notation
Nitrogen dioxide	Interim WES-TWA of 1 ppm over three years (from date of publication of 2019 WES book) with intention to go to WES-TWA of 0.2 ppm after three years
<i>p</i> -Dichlorobenzene	Accept proposed 8-hour WES-TWA of 2 ppm and WES-STEL of 10 ppm and adopt a <i>Skin</i> notation
Phenyl glycidyl ether	Accept proposed 8-hour WES-TWA of 0.1 ppm and adopt a <i>dsen</i> notation
Phthalic anhydride	Accept proposed 8-hour WES-TWA of 0.002 ppm inhalable fraction and vapour and adopt a <i>skin</i> notation
Propylene dichloride	Accept proposed 8-hour WES-TWA of 5 ppm and remove the WES-STEL
Pyridine	Accept proposed 8-hour WES-TWA of 1 ppm and adopt a <i>skin</i> notation
Silica (crystalline, all forms)	Accept proposed 8-hour WES-TWA 0.05 mg/m ³ . Review the WES within the next three years.
Styrene (Biological Exposure Index)	Accept proposed BEI of 400 mg mandelic acid plus phenylglyoxylic acid in urine per gram of creatinine, and 40 µg styrene/L urine
Sulphur dioxide	Accept proposed WES-STEL of 0.25 ppm and remove the WES-TWA
Thiram	Accept proposed 8-hour WES-TWA of 0.2 mg/m ³ inhalable fraction and vapour
Vinyl cyclohexene dioxide	Accept proposed 8-hour WES-TWA of 0.1 ppm
Wood dust	Accept proposed 8-hour WES-TWA of 0.5 mg/m ³ for hard wood dust. Retain the current WES-TWA of 2 mg/m ³ for soft wood dust with an intention to lower it to 1 mg/m ³ in three years.

UoW Work-Integrated Learning Team



It is that time of the year again when we start looking for summer placements for our fantastic and enthusiastic Science and Engineering students. Our students are keen to get out into the real world, apply what they have learnt this year and gain industry experience. As you know, placements are one of the major highlights of their degrees.

Our Engineering and Science Technology degrees offer a comprehensive professional learning program for students to better prepare them for the workplace and are geared toward giving students and employers the best possible opportunity to make the most of the placement experience. More information is available on our Work Placement page.

We will be following up with many of you personally but please contact us if you would like, or are thinking about hosting an intern this summer. If you are in the Waikato / Bay of Plenty region we would love to bring you a coffee and discuss any potential opportunity you may have.

Our Team

Clare Hewins: Science (all fields) / Computer Science / Software Engineering / Materials & Process Engineering / Chemical & Biological Engineering
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022 031 9711 / DDI: 07 837 9454

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Please don't hesitate to contact one of us directly or email

hecs-wil@waikato.ac.nz.

DropLock H&S Update

CETANZ Members Geotechnics were thrilled to have been announced as a finalist for the “Best Initiative in Safety” category for the Safeguard 2020 New Zealand Workplace Health & Safety Awards

These awards recognise the dedication and passion that goes on behind the scenes to keep workplaces safe and healthy.

This nomination was for the recently released “DropLock” innovation. This simple yet effective design was developed by Geotechnics’ Sales Engineer (and CETANZ committee member) John King, in order to minimise the risk of common injuries associated with the transportation of Scala Penetrometers.

Transporting the Scala Penetrometer can pose a risk – if the apparatus is gripped in the wrong place, or misbalanced, movement can cause the drop weight to tip and slide, running down the shaft and crushing the hand of the holder. The risks posed by operating and transporting Scala Penetrometers are widely acknowledged in the industry

There was much discussion about potential design changes to secure the 9kg weight for transport. Many ideas were put forward, including push-pins, locks, tabs, ropes and magnets. Some were convoluted and some were too ‘fiddly’. In the end, it was decided that the solution needed to be simple in order to maximise the chances of people adopting it. The final design is just that. A 25mm diameter PVC Electrical Conduit that has been machined down the entire length of one side, which has been coined the ‘DropLock’.

The slot allows the DropLock to snap on to the guide rod, quickly securing the drop weight for safe transportation of the Scala Penetrometer. The user can even grip the apparatus uninhibited, with their hand comfortably around the in-place DropLock. Once in position, the user simply pulls the DropLock away from the rod and they are ready to begin testing.



Fitting the "DropLock"

DropLock H&S Update Continued...

Health and Safety by design was an essential part of these improvements. Perhaps the reason the design has remained largely unchanged is in part due to the challenge that any modifications must meet the criteria for the technical test. Any difference in performance following safety changes will mean that historical data and inferred parameters may be invalid for technical calculations.

"Although Geotechnics did not win the award, to be able to have created significant improvements in the safety by design and still retain the technical standards necessary is something that we are proud to have achieved." Says John King



Nuclear Density Meters: Changes to Code & Calibrations



Code Change:

There have been recent changes to the code of practice for NDMs, which is affecting a number of changes to how we meet our requirements. Through her capacity as Geotechnics Sales Manager, Brigitte Sargent is working to find an industry wide solution to the issue around monitoring dose/exposure of staff and ensuring that the tungsten shield is properly closed at the end of every test.

As per Brigitte's email below which would have been received by a number of you:



Brigitte Sargent, Geotechnics Sales Manager

"NDM C12 monitoring requirements - survey meters

It has come to our attention through a couple of recent customer audits that current industry practise does not meet the intended requirements of the new C12 legislation for Nuclear Density Meters.

The requirement is in relation to C12 Monitoring and measurement – section 9. It is not spelt out in C12 itself but is being audited on what can be found at <https://www.health.govt.nz/our-work/ionising-radiation-safety/codes-practice> under FAQ's as taken from the ORS website below:

What measurements are required for workplace monitoring?

C12 requires managing entities to establish a programme of workplace monitoring, which for NDMs are confirmatory radiation measurements that are done with a survey meter. A typical workplace monitoring programme would consist of regular dose rate measurements around the source store, at the operator position during measurement, on the bottom of the NDM after a measurement to confirm the tungsten shutter is fully closed, and measurements before transport to confirm the transport index and dose rate to the driver.

Nuclear Density Meters: Changes to Code & Calibrations continued...

What does this mean for you?

In order to try and work out exactly what this means and an industry find a standard solution I have been in contact with ORS and ESR. In regards to requiring survey meters to monitor NDM's, the main intention is that before transport we can be sure the tungsten shield is correctly in place meaning the Cs source is properly shielded. While ESR and ORS cannot tell us what to do, they can offer discussion and comment on our proposed way of handling this.

I am currently looking into suitable cost effective options for survey meters and a couple of visual options for onsite checks that would meet these requirements around shielding (if not shielded this would affect the transport index and dose rate). We are suggesting/investigating visual options as well as otherwise potentially it would be required to have one survey meter per NDM as opposed to one survey meter per location. The bonus of a survey meter is it will help you meet other requirements for monitoring your secure storage facility and calculating exposure rates/risk.

If we can establish and "industry norm" for a standard survey meter, visual inspection method and a standard operating procedure/method for carrying this out I believe we will reduce confusion, compliance problems and cost in our industry.

I am happy to try and get all this together as an industry standard package that will fulfil our requirements and is fit for purpose. If you are interested in this please let me know by return email and I will ensure this information is sent to you as it becomes available. Please also indicate if you would be interested in a webinar/online discussion around this and any other NDM queries that might be out there."

- Brigitte Sargent, Geotechnics Sales Manager

Calibration Change:

As many of you would have seen in a recent update by CETANZ on the NZ Standard for NDM Calibration. NZS 4407:1991 became obsolete in 2015 when the standard was updated. At this time, industry agreement was to move to the ASTM Standard D7759 - 14 by December 2018. Despite delays, there is now this service available in New Zealand.

Therefore, we continue to recommend the transition from the current obsolete NZ 4407 standard to the ASTM D7759/D7759M - 14 Standard as soon as practicable.



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