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SITE VISIT TO LYTTELTON DRY DOCK

The New Zealand Branch of the ACA would like to invite members of the ACA and corrosion prevention professionals for a site visit to the Lyttelton Dry Dock

Date: Wednesday, 6th November 2024

Time: 4pm – 6pm

Venue: Lyttelton Dry Dock, 35 Godley Quay, Lyttelton

Escort: We will be meeting Corey Platt at 4pm and will be walking in an escorted group. Please don't be late, as security won't let you on site if you haven't completed all security requirements as listed and are not escorted.

There is a large trawler in the dock, and numerous refurbishment activities are taking place.

We will be guided by Corey Platt of Marine Protection Systems, the dry dock manager and LPC Engineer.

Corey operates a foundry where he makes zinc and aluminium anodes. He is also one of NZ's very few dedicated specialist marine cathodic protection engineers. Also on site will be other professionals in the corrosion prevention field.

This site visit is a unique opportunity to see the dry dock in action, and chat with a range of experts. I would encourage participants to ask as many questions as possible.

The visit would interest anyone involved in asset integrity, engineering, and painting, particularly in marine conditions, which is pretty much all of NZ.



People who wish to attend should

• Register with Grant Chamberlain <u>grant@</u> <u>cpnz.kiwi</u>, **before 2pm on 4th November**. Grant will supply the list of people to LPC security.

Complete the LPC port user's induction

• Complete the dry dock-specific induction <u>https://www.lpc.co.nz/portaccess-and-inductions/</u>

On the day you will need

- o Photo ID (drivers licence)
- o Hard hat
- o High vis vest
- o Steel-capped boots

LPC takes their security and safety very seriously, and if any of the above steps are not completed you will be refused entry.

ACANZ would like to gratefully acknowledge this month's sponsor...

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Joe Bresnahan, Projects Manager | Joe@strouds.co.nz | 0275 727 920







ACANZ BRANCH: WELLINGTON MEETING

ACA Members and guests are invited to attend a technical presentation by Quest Integrity NZL Ltd in Upper Hutt. This will be followed by a tour of their laboratory and testing facilities.

Date: Tuesday, 5th November 2024

Time:Meet for refreshments from 5.00pm.Technical Presentation to start at 5.45 pm.

Venue: NZCIS Level 2, D Block, 20 Somme Road, Upper Hutt 5018

Chair: Willie L Mandeno

Speaker: Dr Soroor Ghaziof, Service Line Manager for Materials and Corrosion

Subject: Application of an Environmentally Friendly Corrosion Inhibitor for Mildly Acidic Geothermal Fluid Applications

Abstract: This presentation provides laboratory screening results for an environmentally friendly candidate corrosion inhibitor for acidic geothermal fluids. The results provide encouragement for use of this alternative solution for production of geothermal wells cased in carbon and low alloy steels that encounter mildly acidic fluids after completion.

RSVP to wlmandeno@gmail.com or on 027 224 8353

DR AS/NZS 2312.3:2024 IS OUT FOR COMMENT

Members interested in the specification, application or inspection of thermal metal spray coatings, are advised that the long-awaited draft revision to Section 5.2 of AS/NZS 2312:2002 has been released by Standards Australia for public comment.

You can view the draft with latest comments and provide your feedback here: <u>https://comment.standards.org.au/</u> <u>Drafts/f730e3d5-4f1a-47e1-8de3-c78750b6d325</u>

Note that have to first set up an online account with

Standards Australia and comments have to be submitted by 27/11/2024.

Willie Mandeno, Chair MT-014-00-01 Working Group

TRAINING OPPORTUNITY IN NZ CTC | NZ | 25-29 Nov 2024

This is a great foundation course for all corrosion professionals. For more details and to register, go to: <u>https://events.blackthorn.io/en/5j1hxgo7/g/3VggT5Fffm/aca-corrosion-technology-course-or-nz-or-25-29-nov-2024-4a2ZI71kFV/overview</u>

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Visit https://www.corrosion.com.au/conference/



NEW ZEALAND BRANCH

TURNING SCRAP METAL INTO SCULPTURES

From dawn until dusk, Milynda Rogers can be found in her backyard shed, welding, twisting and hammering old rusted tools and scrap metal into objects of beauty. A labour of love for the past 15 years, she has constructed more than 100 sculptures that are now dotted across Queensland's outback landscape.

Her most recent creation transformed more than a kilometre of rusty barbed wire into a life-sized horse. "I have an idea for something, and I can't stop thinking about it until I've made it," she said. Milynda entered the horse in a sculpture festival and won. She's even been dubbed by locals as the "scrap metal Sheila."

"People will call me and say I've tidied our old shed and I've got a trailer load of old tools and scrap metal," she said. "I've actually had to start turning people away, it's too much." A 200km tourist drive in the Barcaldine region of western Queensland now has 40 of Ms Rogers' sculptures positioned along it.

She used to live on a cattle property along the route now known as the Lake Dunn Sculpture Trail. The trail is like a treasure hunt - from spying a returning soldier sitting astride his horse on the edge of a bluff, to a kookaburra sitting high in a gum tree. "Sometimes I get a really interesting piece of scrap metal and I know I want to make something around that piece," Milynda said. "Other times I just know I want to make a horse or a bull or a peacock and I'll go searching."

Despite her large collection of sculptures, Milynda shows no sign of slowing down. A large rusty metal camel under construction currently stands in her workshop, being made to feature on the sculpture trail.





NEW ZEALAND BRANCH



Older ACA NZ members have probably seen a number of situations that may never have made it to a textbook.

CORNER

If you have a question you'd like clarification on, email it to the Editor at lesboultonrust@gmail.com. We'll pose it to our panel of experts who will answer it in another Bulletin, so everyone can improve their knowledge.

Q:

Does the oxygen in air come only from plant photosynthesis?

& A:

No - meet "dark oxygen"

About half of the oxygen that we breathe, and which causes corrosion of metals, comes from the ocean. It is generally understood that oxygen from the oceans is generated by marine plant photosynthesis which requires sunlight.

Recently, however, marine scientists have discovered "dark oxygen" being produced in a deep ocean, apparently by lumps of metal on the seafloor. At an ocean depth of 5km, where no sunlight ever penetrates in the eternal midnight zone, the oxygen appears to be produced by naturally occurring metallic nodules which may be splitting water molecules (H2O) into hydrogen and oxygen.

The potato-size polymetallic nodules, which contain manganese, copper, cobalt and nickel, litter thousands of square kilometres of the Pacific Ocean's deep seabed. The metal nodules have been millions of years in the making, and are situated in the vast Clarion-Clipperton Zone of the Pacific Ocean between Mexico and Hawaii.

Mining companies have plans to harvest these metal nodules while marine scientists fear that mining would disrupt the newly discovered process and damage the existing deep sea marine life.

Marine scientists believe they have worked out that the metal nodules produce oxygen because they appear to act like a battery, and produce an electric current that can split water molecules in seawater by electrolysis (seawater is a good electrolyte). Research



has shown that a voltage exists on the metallic lumps which is equivalent to a typical AA-size battery; enough to cause electrolysis of seawater. So when the nodules are lying on the seafloor in contact with one another, they are working in unison like a series of batteries.

However, the marine scientists' explanation is being challenged by other research groups.

This discovery poses another question as to whether ships that sink in the deep ocean containing dark oxygen would corrode faster and degrade more rapidly than wrecks in shallower seawater. The marine corrosion of steel is a very complex process - the discovery

of dark oxygen may challenge conventional understanding that the deeper a shipwreck is located in the ocean, the slower will be the rate of the steel corrosion.

> Marine life exists on the polymetallic nodules



Reference: A. Sweetman, et al, J. Natural Geoscience, July 2024



new zealand BRANCH

Introducing ACA Board member Trish Shaw for a second term

Following the October 2024 ACA Council meeting, former ACANZ President Dr Patricia (Trish) Shaw was re-elected to the ACA Board to fill the vacancy created by former Chair, Dean Fergusson's retirement.

She is well qualified to serve as our Board member as, besides her PhD in Chemistry awarded by the University of Auckland in 1994 and a PGDip Business they also awarded her in 2004, Victoria University of Wellington awarded her a PGDip Strategic Studies in 2018. Her previous governance experience includes three years as a member of the University of Auckland Council.

From 1994 to 2011, Trish was with the Defence Technology Agency in Auckland where she managed the NZDF corrosion programmes that included protective coatings for the RNZAF and RNZN. For four years she chaired the Coatings, Polymers and Adhesives panel of The Technical Cooperation Programme (TTCP) representing NZDF at international meetings and conferences.

After an 18-month executive position with the NZ Army at Waiouru, Trish joined BRANZ for four years as a Materials Scientist. There she led a multidisciplinary (fire, structures and materials) team of ten carrying out applied research including corrosion of building materials, in support of New Zealand's building and construction industry.

Until recently, Trish was a Principal Scientist and Team Leader of the Advanced Materials Group at Callaghan Innovation in Lower Hutt, where her team conducted



applied research and provided consulting services across a range of industries in NZ. She is now semiretired and does a variety of contract work.

Trish was the PF Thompson Memorial lecturer at our 2016 Corrosion & Prevention conference in Auckland where she also won the AC Kennett Award for the best paper on non-metallic corrosion. This was one of her 23 published papers with many having been presented to ACA and other international conferences. Trish remains involved with the ACANZ Branch as the Publications and Membership Officer, and is also our representative on the International Corrosion Council. She also was a Director on the ACA Board from 2021 to 2023.

Compiled by Willie Mandeno 15/10/24

Then and now:

The copper clad Statue of Liberty as built in 1886, and how it appears today

Corrosion has taken its toll over the years...





Choosing the right spray equipment for your coating type

Advertorial

No matter your industry, the success of any project depends on using the right spray equipment to consistently deliver your coating at the ideal rate, based on your unique operational needs.

Understanding application demand

One of the most important factors when selecting spray equipment is the "application demand" - essentially, how fast and efficiently the coating needs to be applied. This demand directly influences the pressure needed to atomize the coating, which determines the type of pump, tip size for coverage, number of spray guns, duty cycle and flow rate.

Both the pressure and the pump's flow rate play a role in the overall application rate. While many pumps can generate the required pressure, they come in various sizes based on flow capabilities. For example, a sprayer with a larger fluid section can handle heavier jobs more efficiently, as it cycles at a slower pace while maintaining the necessary power.

Distance matters: pump to gun

It's important to consider the distance between the pump and the spray gun. As hose lengths increase,

so does the pressure drop, meaning more pumping power is needed to maintain atomisation. The diameter of your hose also impacts pressure - using a wider hose can reduce drop. Elevation adds another layer of complexity; if the application area is higher than the sprayer, the pressure drop will increase, requiring adjustments. We can collaborate directly with your coating supplier to ensure you're selecting the right equipment to meet the specific product requirements.

Facing a coating challenge? Let us help you find the perfect solution!

Joe Bresnahan Projects Manager Joe@strouds.co.nz 0275 727 920 strouds.co.nz



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