

ACA NZ BRANCH COMMITTEE MEETING

On September 15, ACA NZ's Committee met via Teams for their mid-year meeting. The Committee members represent each of the four New Zealand Divisions; Canterbury, Wellington, New Plymouth, Auckland – nominally with three members from each Division.

Local reports included acknowledging with regret the passing of Andreas Gabriel, an ACANZ past-president and a much liked and well-respected member of the ACA. The Committee recognised the work done by Les Boulton, Ron Berry and other ACA members to support the Gabriel family.

The recent annual SESOC conference in Hamilton had a Durability of Building Materials stream produced by ACA NZ. ACA NZ and SESOC intend to make this a component of future conferences, probably at each second one.

ACA NZ has sponsored corrosion and material durability prizes at the Aurora Energy Otago, WITT Taranaki, and the NIWA Wellington Regional Science and Technology Fairs.

The Divisions have had few events this year, with difficulties organising around Covid-19 restrictions. The Auckland Division is recruiting members for the Division Committee - please contact Matt Vercoe if you're interested in this opportunity to contribute to events and management of the ACA in Auckland.

Keep a lookout for notices for ACA NZ Christmas events in your area, withinin this Newsletter and in ACA News emails.

The meeting was joined by Kim Jones (Interim CEO of the ACA and ACA Board member), Lachlan Sebbens (Membership Coordinator at the ACA Centre in Melbourne), and Dean Ferguson (ACA Board Chair) to discuss NZ matters, and the upcoming changes in ACA personnel.

Several of the staff at the Centre, including the CEO Ross Boucher, have resigned. This is reported as not being due to any dysfunction at the Centre. The ACA Board are working on staffing and systems to keep the Centre operating and in the long term, to improve services provided to members.

The difficulties that several ACA NZ members have experienced this year when registering for courses with the ACA Centre were discussed. These difficulties were due in part to the large amount of staff time taken up by re-organising courses around Covid-19 lockdowns, as well as upgrades being made to IT systems.

The Committee thanks the Bulletin team for continuing to produce the Newsletter. The Newsletter is greatly appreciated by the membership and the committee, and the consistently high standard achieved is recognised.

by Mark Sigley

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



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Q

&

A

CORNER



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

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:

Will a combination of stainless steel and copper or copper alloy in a plumbing system cause galvanic corrosion?

& A:

The short answer is "No" – although many people have assumed that stainless steel, usually Grade 304 or 316 in the water industry, will not only be cathodic to copper or copper alloys, but will significantly shorten the life of a system containing the two different materials. In fact, a combination of these metals has had many decades of successful use, usually with brass or bronze fittings and stainless steel pipe as shown in the photo taken from the Audi factory in Germany.

No significant galvanic action has been reported from the field, and laboratory testing has shown that the potential difference between all types of stainless steel and copper and its alloys is quite small. Moreover, stainless steel is quite an inefficient cathode, which means it is not as good at reducing oxygen (the cathodic reaction) as some other materials such as carbon.

So, feel free to use any combination of stainless steel and copper alloy in your water system without fear of a premature failure!



Submitted by Dr David Nicholas, Principal Consultant, Nicholas Corrosion Pty Ltd, Newcastle, NSW

Corrosion & Prevention

NEWCASTLE 2021

POSTPONED TO FEBRUARY 13-16, 2022

This decision does not affect plans for Corrosion and Prevention 2022, which will go ahead in Perth in November 2022 as scheduled. More details here: <https://membership.corrosion.com.au/blog/corrosion-and-prevention-2021-update-2/>

Renewable Energy Power Sources and Corrosion

an opinion piece from Les Boulton



The Auckland Harbour Bridge is lit up at night using electric power produced by solar energy provided by Vector Energy Ltd

As the push to replace fossil fuel power stations increases around the world, there has been a corresponding increase in the construction of renewable energy power plants in New Zealand.

Hydro-electric plants have been the traditional source of electricity in NZ, but they've been steadily ageing and there is little capacity left on our rivers to build any new hydro plants. More recently, a number of hydropower stations in the national grid have suffered corrosion issues due to the age of the plants, and the old materials employed when they were constructed in the 1950s. Maintenance requirements on the old hydro plants have steadily increased, and they will likely require more ongoing maintenance in the future.

Geothermal power plants supply an increasing amount of New Zealand's electricity (12 percent and growing) and growth of new geothermal power plants has been steady over the past few decades. Because subterranean geothermal steam is available in all weather and at all hours, this unique form of electricity production has become an important part of the national electricity supply. Smaller, dedicated geothermal plants have also been built alongside large industrial plants that require good reliable power supplies.

Corrosion has always been one of the factors that have caused major maintenance issues for geothermal power plant operators. However, the advent of modern alloys (e.g. stainless steels) that can withstand high temperatures and corrosion simultaneously, has overcome many of the corrosion problems that used to beset older geothermal plants. The future for geothermal power is very bright.

Solar power plants are becoming more common in New Zealand as the decreasing cost of large photovoltaic cells

has made solar farms more efficient. Also the design and construction of the solar panel support structures, where many have suffered corrosion, has improved to minimise the effect of atmospheric corrosion on the metals employed to fabricate the supports.

The choice of support structure metals has improved, and the structure design to eliminate galvanic corrosion and atmospheric corrosion has also moved forward. Although the efficiency of solar power is weather dependent, it is set to become more widely used in the future as large electricity storage batteries are installed with the solar power farms.

Wind turbine farms, using very large tower structures, have also become more widely used in recent times. The wind farms are being installed on land and also in the sea. In the latter case very high-end corrosion control systems, including cathodic protection, are employed.

For land wind farms the turbine towers are installed in high wind zones, not close to towns due to the noise their huge rotating turbine blades generate. The wind farms are also weather dependent, and a number of towers have caught fire or been struck by massive lightning bolts that have destroyed the towers. Corrosion has not been a major problem with wind turbines as long as the turbines are properly maintained.

The control of corrosion on renewable power plant components is just as important as it is to keep the turbines spinning in coal-fired power plants, which are constantly monitored to ensure that corrosion of the turbine components does not occur.

It is important for every electricity provider to consider the cost of maintaining all renewable energy components if NZ is to continue down this road in a cost effective way.

Renewable energy and corrosion - continued



Above: A recent fire destroyed a wind turbine in Manawatu © Phil Nolan

Left: Delamination in specific DASA-PV modules in solar panels

Right: Wind turbine corrosion in NZ © coating.co.nz

ACA NZ Branch Members will have noted that the NZ Bulletin is now delivered to members' inboxes via the NZ Newsletter sent out from the ACA Centre with a link.

The previous method of using email with a PDF attachment is being discontinued.

Please print a copy of the monthly NZ Bulletin once you have opened the link, should you wish to retain a print copy.

The Bulletin Team

CONTACT LIST

ACA NZ BRANCH COMMITTEE AND OFFICERS 2021

President	Matthew Vercoe	matt@metal-spray.co.nz	(09) 376 0463	(021) 322 257
Vice President	Ry Collier	rcollier@methanex.com	(06) 754 9782	(027) 602 0118
Secretary	Mark Sigley	mark.sigley@firstgas.co.nz	(06) 215 4044	(027) 706 7739
Treasurer	Willie Mandeno	wlmandeno@gmail.com		(027) 224 8353
Education	Willie Mandeno	wlmandeno@gmail.com		(027) 224 8353
Membership	Matthew Vercoe	matt@metal-spray.co.nz	(09) 376 0463	(021) 322 257
Technical	Raed El Sarraf	Raed.ElSarraf@wsp.co.nz		(021) 244 9093
Electrolysis	Grant Chamberlain	grant@cpnz.kiwi		(021) 466 629
Editor	Les Boulton	lesboultonrust@gmail.com		(021) 478 300
ACA Council	Matt Vercoe	matt@metal-spray.co.nz	(09) 376 0463	(021) 322 257
	Willie Mandeno	wlmandeno@gmail.com		(027) 224 8353