# NULCA Ltd News

#### Q4/2021



NATIONAL UTILITY LOCATING CONTRACTORS ASSOCIATION OF AUSTRALIA LTD.

D<u>ec-21</u>

States States - Barris

# NULCA Ltd AGM – Tonight!

Tonight, is our first AGM as NULCA Ltd - 6.30pm AEDT. Join us to meet the nominees via zoom link:

Meeting ID: 657 012 7659 Password: 413369

Why is it important? NULCA Ltd is the representative body for cable Locators run by cable Locators. There is a lot going out there within our industry. As a NULCA member you have chosen to associate with like minded people who care about providing a professional quality service and building the profile of our craft.

The NULCA Board is committed - on your behalf - to keeping in touch with the changing face of Locating including technologies and associated disciplines like survey, engineering and spatial sciences.

Our meetings are a place where you can share tips and tricks, trade war stories, feel safe to share in lessons learnt and ask for more as a collective voice.

Your trust in the Board as an individual is what motivates us to progress us all as a group.



# Stay safe and see you in 2022

From the outgoing Board we thank you for your support and contributions to NULCA Ltd.

We sincerely hope you get a chance to put your feet up and enjoy the company of friends and family.

## **GENERAL** INFO

- No Dig Down Under 8-11
   March 2022
- Networking Dinner 10<sup>th</sup> March
- Photo comp 2 winners because its Christmas
- Earning CEU points with NULCA – Sonde Locating masterclass
- We need your help with newsletter content.
   Please contact us at <u>admin@nukca.com.au</u> or reach out at the next meeting
- Directional Drillers have you got something you can share?



## WELCOME TO NEW MEMBERS from September to December 2021

Bradley Harrold – East Coast Water Pty Ltd t/a Always Locating

Dean Tosh - Network Protection Specialists

Rajat Taneja - Survey Management Solutions

Nikki Timmins - Pro-Tech Group Victoria

Brett Pickup Bap Services Pty Ltd

Brynn Sike - CD Drilling

Melvyn Hughes - BRP Products (AUST) Pty Ltd

Robert Row –

DBYD Certification Ltd

Liam Catchpole – Rapid Service Solutions





The Referral Service of the Future is <u>NOW</u>



#### **Continuing Education Units**

For the period 1 July 2020 to 30 June 2022 you will be requiring 40 CEU to renew, after June 2022- 50 CEU are required

Collect your points:

**10 CEU:** Attendance at a NULCA general meeting

**10 CEU:** Completion of DCL Pre-Excavation Management Webinar

**15 CEU:** Current membership of NULCA

**20 CEU:** Attendance at a DCL recognised damage prevention conference

**35 CEU:** Provision of evidence of work in the locating industry for previous 24 months by way of submission of a logbook

**50 CEU:** Pass a DCL recognised 1-day skills upgrade course



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# STAYING IN FOCUS Send us your best photo and win!



Thank you to everyone who sent in a photo, there were some really good entries this round so because its Christmas we have double down and the winners are: Antony Critcher of Geotrace in NSW for sharing the Critcher family's present and future of locating, and Adey How of Cable Search Services in SA for the gift that keeps on giving – untraceable pipes!

"once we pothole it, we'll hook up to the trace wire right??" #locatorlife

#### Save the date:

- NULCA AGM MEETING 16<sup>th</sup> DECEMBER
- NO DIG DOWN UNDER MARCH 2022 NULCA will not be having a stand at the No Dig Conference, but will be hosting a networking dinner on the Thursday evening 10th March further details closer to the event.

# Looking for some new threads or another pillow for the bedroom?



NULCA Ltd has Absolutely no affiliation to any of these you need to GOOGLE this one!

#### SUPPLIER'S POWER SCAN NULCA Ltd have member suppliers:

- Access Detection Pty Ltd
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- J B Hunter Technology Training RTO www.jbhunter.edu.au
- Papworths Construction Testing Equipment (PCTE) www.pcte.com.au
- Radiodetection Australia
   <u>www.radiodetection.com</u>
- TRIO Test & Measurement -IPD Group <u>www.triotest.com.au</u>
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FROM ALL THE TEAM AT VIVAX METROTECH WE WOULD LIKE TO WISH ALL NULCA EXECUTIVE AND MEMBERS A SAFE & HAPPY FAMILY CHRISTMAS TOGETHER MAY 2022 BE A YEAR THAT WILL BRING JOY AND HAPPINESS NATIONAL UTILITY LOCATIN CONTRACTORS ASSOCIATIO

#### FEATURE ARTICLE: Sonde Locating Courtesy of Anthony Johnstone, Access Detection





I was asked to do a piece for the newsletter on Sondes, my depth of knowledge is not magnificent but what I share hopefully will help a little for the operators who don't always use Sondes in there day to day locates.

A lot of the below information was taught to me by very knowledgeable people mainly the manufacturers of the locating equipment. This knowledge was backed by a great guide called

"The ABC & XYZ of locating buried pipes and cables" from Radiodetection, which needs to be acknowledged along with a couple of diagrams I have used for this article.

I started my career 23 years ago and this book was the starting point of my knowledge, so I highly recommend it.

All members - at the end of this article, we will open up a Private Linked In page for further info on deep Sonde locates and other techniques so others can share their experience, please contribute where you can.

**Sonde locations are one of those skills as a locator you may not regularly do**, while sonde location is relatively simple once you understand the concept, it does become more difficult when dealing with deeper depth unusual attitudes and congested areas.

#### So, let's start with the basics....

A sonde is either a battery or transmitter powered device. Battery operated Sondes are the most common for locator contractors but if you use camera systems or combination trace rods, then you would have also come across transmitter-based Sondes.



NERD FACT 1 - A Sonde was the name given to a device/probe that recorded telemetry in the upper atmosphere for Meteorology, but the same name was used for engineering and recording depth layers in bore holes, so hence why we call it a sonde in our industry.

### FEATURE ARTICLE: Sonde Locating

A Sonde is a basic coil with ferrite core, it's a bit like the ferrite core antenna found in most locating receivers. Most are battery powered and work in standard frequency ranges the most common is 33 kHz. 512 Hz is another option and was primarily used for cast iron sewer mains as this signal would penetrate through the cast iron were the 33 kHz would not. There are other frequencies also available from different manufacturers.

> NERD FACT 2 - 512 Hz sondes are close to the harmonics of power, you can receive interference when using this type of Sonde frequency around some underground power cables.

We generally class Sondes into three categories, small, medium, and large sondes - we won't include the specialist sondes.

Small sondes tend to be used on smaller conduits and are powered by those tiny button style batteries. These are relatively low powered and will give a maximum depth of well under a meter. These sondes will fit into the smaller 20 mm conduits in Telco pits and are generally used to locate house feeds.

Medium sondes are the most common Sondes used. They use larger batteries and are more powerful and flexible, some medium sondes are small enough to fit into 30 - 40mm conduits while still giving you good depth range and signal.

Some can go to depths of up to 6 meters and are used in your standard sized 70 to 150 mm conduits.

Large sondes are very large bulky sondes this is due to the larger coil which allows it to radiate a stronger signal. They usually use higher powered batteries and will drain these batteries fast. Depth ranges vary from 8 meters to 15 meters, but we will talk about realistic depths later especially at the depths that these sondes can potentially work at.







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## FEATURE ARTICLE: Sonde Locating

A Sonde radiates a signal around the ferrite core hence why you must hold the receiver blade parallel to the pipe you are tracing ie. *along or in line* with the sonde. The receiver uses the PEAK antennas to locate the maximum signal of the sonde. Some manufacturers, for example the Rigid Navi-Trac, use a combination of antennas that gives you a graphic display of position and orientation.

Other manufacturers have now copied this idea. The Multi antenna systems do make locating sondes at <u>normal depths</u> much easier than a traditional locator.



NERD FACT 3 - VERY IMPORTANT A Sonde will give three distinctive signals a little like an echo effect either side of the main signal. These echo effects are weaker than the main signal and disappear the deeper the Sonde goes.



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## FEATURE ARTICLE: Sonde Locating

Some simple but *very important* points for reliable sonde location:

- Fresh Batteries everytime. Always replace the battery with a fresh one as sondes tend to draw power and usually only use small low storage batteries. Some batteries can be depleted within a couple of hours
- Test the sonde with your locator before you start your location to ensure it working correctly
- Push the sonde a couple of meters at a time this allows you to accurately locate along the pipeline and determine any changes in direction and depth quickly.
- " + " marks the spot Once you feel that you are over the top of the sonde on a traditional locator you should move the locator either side of the signal position while still holding the locator parallel to the line to confirm maximum signal. A final check would be to rotate the locator over the top of the signal (top of the sonde) to ensure the sonde is not skewed left or right in the pipe. This ensures the most accurate depth. Most modern locators have a sonde orientation indicator.

#### NERD FACT 4 - AS5488 Compliance

A Sonde allows you do give Quality Level B depths when used correctly.

Caution however, when doing deep sonde location or if you have severe tilt, you may not be withing the  $\pm$  500 mm range to be able to give a QLB point. This is due to the Specifications from manufacturers on Depth accuracy. So, if in doubt mark it as a Quality Level D

You can also do passive depth check a bit like depth by triangulation like line locates, but this is a little different. To confirm passive depth (triangulation), measure the distance between the two NULL points either side of the main signal. You then times this by 0.7 to obtain an approximate depth. This can also be handy way of confirming depth on deeper sonde locates where depth can be less accurate.

DONT FORGET - Depth signal is read differently to a line locate and uses a different depth formula, so ensure you have the correct mode on your locator selected when reading depths.





### FEATURE ARTICLE: Sonde Locating

NERD FACT 5 - Any type of tilt in the sonde will create depth and in extreme case position errors so be aware of this when marking depth on sondes. If the Sonde falls into a pit and becomes vertical the signal will give you a NULL signal over top of the sonde which can confuse the operator as you would only receive two even PEAK signals either side of the sonde.



**NERD FACT 6 - Sophisticated sondes** can give tilt, angle and temperature telemetry and are used with direction drills, they use a dedicated receiver to read this extra information.

Now that you know the basics you should practice locating your Sondes regularly, so you have a good grasp on accurate locates. This will help you once you get into more complexed Sonde locates.

The next part of Sonde location I have moved to our Linked in forum. This is a private forum for NULCA members only. Here I have a few pointers on more complexed sonde locations but am hoping more experienced users will add to this and share their information and experiences. If you haven't signed up or have a username or password, you may not have access to this portal.

I encourage you to take the time in using this Linked in NULCA forum.

**NO-DIG** DOWN UNDER

Editor's note – this may not be set up until after Christmas.

**Building sustainable futures** 

Further to this, I am interested in following this one up with a feature article on Directional Drilling so if you think you can help get in touch at admin@nulca.com.au

> 8-11 March 2022 International Convention Centre (ICC) Sydney



To all our existing and future customers,

We would like to thank you for your continued support. Although it has been a rough and turbulent past couple of years, with many ongoing challengers we have come through and survived. This would not have been possible without our many supportive customers.

#### MERRY CHRISTMAS AND HAPPY NEW YEAR



May you have a safe and enjoyable Christmas with family and friends. We hope 2022 brings good health and prosperity,

We hope to catch up with you in 2022 to be able to demonstrate our range of professional utility products.

Access Detection Pty Ltd sales@accessdetection.com.au Phone: 02 9999 0777 www.accessdetection.com.au



#### A quick overview on GPS Surveying.

With a number of locators providing connectivity to GPS enabled mobile devices for mapping functionality, it is important to understand what level of "surveying" you might be undertaking.

Surveyors use GPS (or actually GNSS – Global Navigation Satellite Systems) to provide accurate and reliable data for a number of applications including survey pick up of features and utilities.

GPS uses a network of satellites, which communicate with receivers on the ground. When a receiver requests data to calculate its location, four or more GPS satellites will communicate with the receiver, sending the position of the satellite, the time the data was transmitted and the distance between the satellite and the receiver. The information collected from these satellites then calculates the latitude, longitude and height of the receiver. If the receiver is moving, continuous data collection can be used to calculate the changing position of the receiver over time, which can be used to calculate speed. No matter the weather conditions or time, GPS can triangulate the signal and provide a location.

The ultimate question stakeholders are concerned about is the **accuracy** of GPS survey equipment. Poor equipment and inexperienced users can negatively affect accuracy. It is important to understand what level accuracy your client is wanting before you start talking it up or over commit. **True centimeter accuracy can only be achieved with high end survey grade receivers referenced to base stations**.

## SURVEYORS CORNER

Base Stations? "CORS" -

**Continually Operating Reference** 



Each state within Australia offers a CORS system that as a combined network covers almost the entire nation, allowing for accurate and reliable GPS positioning anywhere in the country.

The CORS network includes a number of fixed GNSS receiver, known as Continuously Opertaing Reference Stations (CORS), that are strategically located across each state.

The CORS network continuously observes and corrects satellite navigation signals in order to achieve high-accuracy positioning data that is streamed to users via a wireless internet connection.

Access to a CORS network is subscription based and done through an authorised reseller. You will also need to find out if your GPS equipment is compatible with a CORS network.

For more check out: https://www.ga.gov.au/scientifictopics/positioning-navigation/geodesy/gnss-

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### **End-of-Year Promo**





### **Advanced Utility Locator**

The **vLoc3-Pro** utility locator introduces new innovative tools for locating buried utilities assuring damage prevention while gathering information for analysis.

With two sets of screened 3D antennas signal distortion is easily detected and displayed on the bright full color display. Along with classic locate screens the vLoc3 series locators offer new locate perspective screens of Vector Locate for fully automatic non-walk over locating









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