

THE LOCATOR

2023



**CANADIAN ASSOCIATION OF PIPELINE
AND UTILITY LOCATING CONTRACTORS**

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and enhance the value and reputation
of the underground facility locating
industry in Canada.

**2022
AGM RECAP**

**WORKING TOWARD A
NATIONAL LOCATING
AND MARKING
STANDARD**

**LOCATOR STORIES
FROM THE TRENCHES**

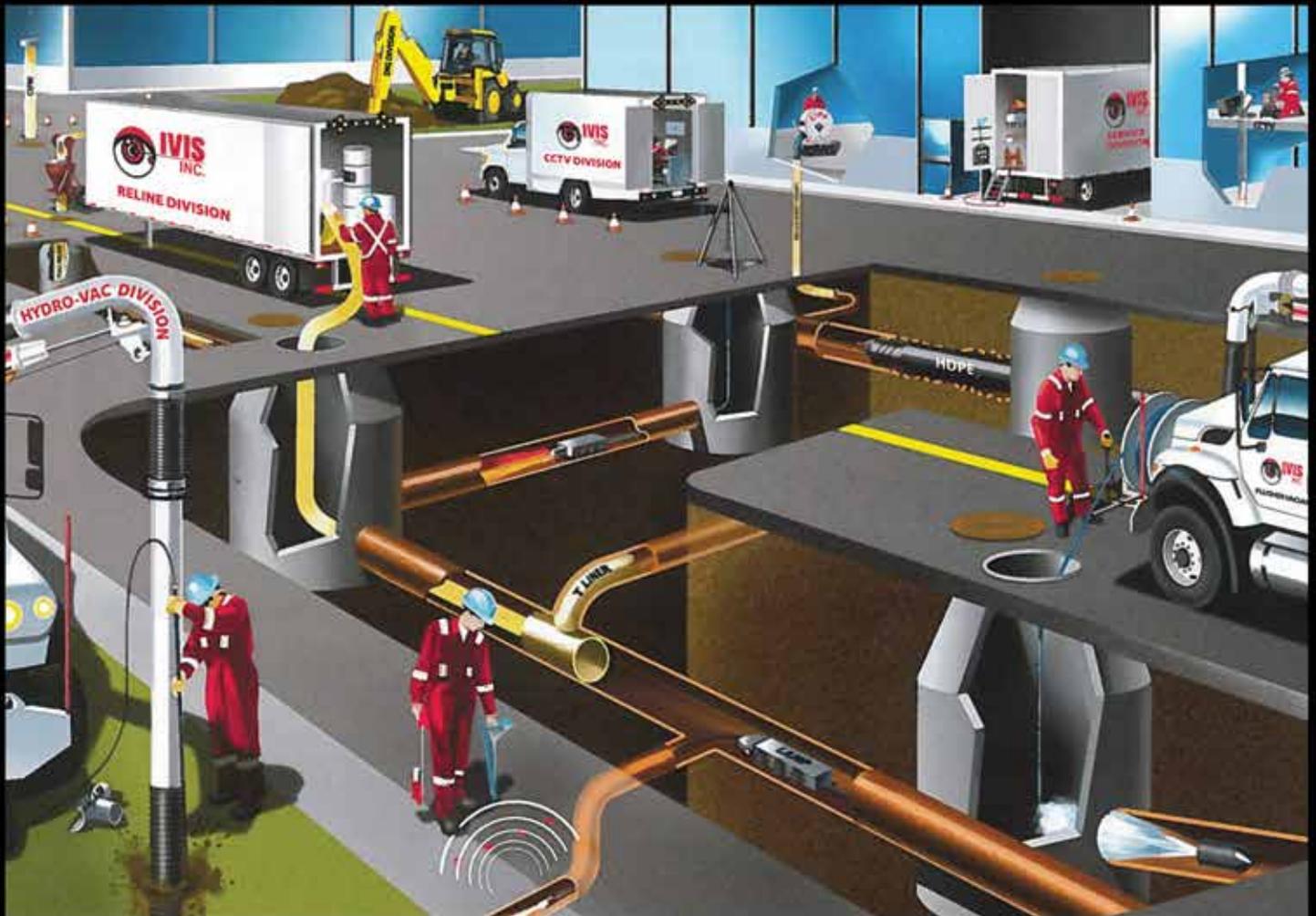
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Global Locate Masters

This unique competition allows technicians the unprecedented opportunity to showcase their skills in front of a live audience of peers and industry

leaders and evaluates their performance against other competitors. Find out how to qualify at GlobalLocateMasters.com.

* Conference registration required

Workshops

Damage Investigation with an Expert Witness

w/ **Ron Peterson (\$255)**

Tuesday, February 14, 2023

8:00 AM – 12:30 PM EST

Damages to underground assets occur regularly. Every company needs a policy ensuring everyone in the field can properly conduct a field incident investigation, in a timely manner, for cost recovery.



Utility Locator Skills Enhancement w/ Bob Nighswonger (\$395)

Tuesday, February 14, 2023

8:30 AM – 3:30 PM EST

Not only is this skills training workshop a great introductory session and a valuable career-building tool for the novice locator, the



workshop was designed to challenge and expand the knowledge base of even the most seasoned of pros on the art of underground line locating and marking.

Learn more about sponsoring or exhibiting at Global ESC at:

GlobalExcavationSafetyConference.com



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Message from the president of CAPULC

JAMIE ANDERSEN



Once again, it is such an opportunity to be completing the President's message for you this year. It has been a busy year for many locating companies across Canada. Safety protocols were put in place just in time for the construction season to rush to complete outstanding projects, all the while trying to stay on top of the new ones. It's comforting to see some renewed opportunities to obtain work that had been scarce to find in the past couple of years. This boom has had many members scrambling to find and train staff, but everyone seemed to welcome the change in pace! The challenge of trying to source supplies and equipment is still a concern and focus for many of our members; however, we hope to see those concerns start to lift in 2023.

Throughout this busy year, CAPULC's board of directors, committees, and members remarkably still managed to carve out time to help establish one of our most productive years yet. First, we are incredibly proud to announce that our National Underground Locating and Marking Standard has come to fruition and signifies our concerted effort to begin to unify and streamline training processes, competency, and evaluation. Continuous improvement is inevitable. Please take a moment to review this important document, as our second feedback period comes to an end October 31st, and our final Version 1.0 release is set to be published this early winter. This achievement was not without its challenges, but the kickoff of this new standard has the room to develop and grow, as well as a supportive industry to guide it.

Next, we can't dismiss the fantastic efforts of our Advertising, Marketing and Communication Committee. Their ideas to promote CAPULC, awareness for events and news, and create a supportive interface for our members have been remarkable. This committee is solely responsible for the construction and planning of our Locator magazine, updates to our website, posts to social media and organizes our participation at conferences and trade shows. They continue to generate methods to communicate with our members and foster relationships with our industry.

As we close off 2022, it is very comforting to once again be able to participate in conferences and network with colleagues that we haven't seen in a long time. Please make sure to catch the upcoming events section to find information on our General Members Meeting and Annual General Meeting. Please register so you don't miss out!

Lastly, we can't thank everyone enough for their participation, sponsorship, and pledges to provide the resources necessary for our association to succeed. I also would like to recognize our Board of Directors and Administrative Coordinator, Tracey Paluck, for taking an initiative in the future growth and successes of CAPULC. Along the way, we have undoubtedly added valuable individuals, groups and corporate support to our association and will continue to forge forward and add value for our membership and industry.

What are CAPULC's next endeavors? Stay tuned!

Sincerely,
Jamie Andersen ●

ATTENTION BC LOCATORS



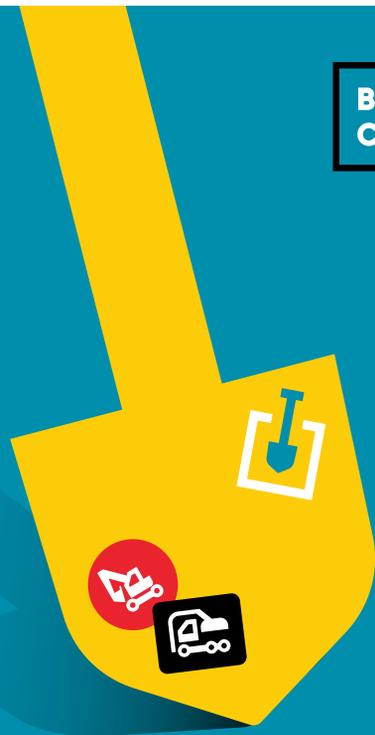
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How well do you know the CAPULC Board of Directors?

Can you spot the lie?



JAMIE ANDERSEN – CAPULC PRESIDENT

Jamie Andersen is CAPULC's President. She is one of the handful of founding members of CAPULC and has been an active member since its inception. Jamie has extensive experience on the Board of Directors and has been president of CAPULC for over two years. She is very dedicated to the association's success and believes that her participation will contribute to helping individuals identify with the significance, future promise, and opportunities that this association and industry can offer. She is passionate to achieving a designation for the locating industry and CAPULC has developed an excellent foundation to support this. Representing CAPULC, Jamie serves as a board member with the Canadian Common Ground Alliance (CCGA) and the Alberta Common Ground Alliance (ABCGA)-USP and feels that this is her opportunity to contribute.

Jamie has been a co-owner of First Alert Locating Ltd., a well-established line locating company, since 2000. She is currently in the main office in Grande Prairie, Alberta; however, First Alert also has branch offices in Whitecourt and Rimbey. Jamie has extensive experience with locator field knowledge, ground disturbance consulting, safety management, and CEO responsibilities. She is honoured to bring her business knowledge and experience to CAPULC.

LITTLE KNOWN FACTS ABOUT JAMIE...

- 1) In any spare time that Jamie finds – if she finds any – she sneaks off to Shuswap Lake.
- 2) Jamie has no kids – she has a husband and three dogs.
- 3) Jamie has over 100 people in her immediate family.
- 4) Jamie has a pet snake named Murdock.

Can you spot the lie?

p: (780) 882-7516

e: jamiea@firstalertlocating.com



GARY MASON – VICE-PRESIDENT

Gary Mason became CAPULC's Vice-President during the 2022 AGM this past April. After serving four years as a director, it was a natural progression moving into this new role. Gary is a long-standing member of two of CAPULC's busy committees: the Advertising, Marketing, and Communication Committee and the Education and Standards Committee. In addition to CAPULC, Gary served on the Board of Directors of the ABCGA and is currently part of the Marketing Committee with the USP. Gary is specialized in the sale of utility locators and damage prevention equipment for LineStar Utility Supply for the Alberta region.

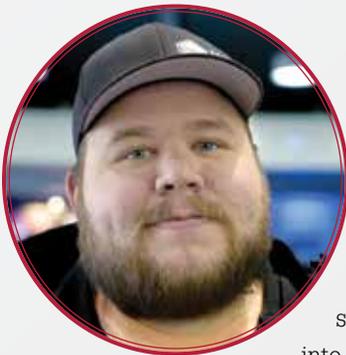
LITTLE KNOWN FACTS ABOUT GARY...

- 1) Gary is a musician.
- 2) Gary has a degree in recording engineering.
- 3) Gary cliff dove off the coast of Mexico.
- 4) Gary had a finger amputated while lobster fishing.

Can you spot the lie?

p: (403) 243-1900

e: gary@linestar.ca



LANCE NORMAN – TREASURER

Lance Norman joined the board in 2019 as a Director and now serves as Treasurer. He believes in going above and beyond to meet the expectations of his customers and employees and he is committed to this level of dedication with CAPULC's members and sponsors. As President of LN Land Development Technologies, Lance's industry knowledge and business skills grew what started as a business servicing oilsands companies with mining and earthwork projects in 2007 into a comprehensive, customer-driven land services company. LN Land Development Technologies now has offices based in Edmonton, Fort McMurray, Lacombe, Terrace, and Calgary. They are proud of their diverse qualifications, experience, and in-depth knowledge of the industry's most advanced equipment. When it comes to customers and our country, only the best is good enough.

LITTLE KNOWN FACTS ABOUT LANCE...

- 1) Lance has a wife, a two-year-old girl, and three dogs.
- 2) Lance enjoys spending time at the lake with family in his spare time.
- 3) Lance spent two of his early adult years (very early) as a hard rock DJ touring throughout Western Canada.
- 4) Lance owns three businesses operating throughout Canada.

Can you spot the lie?



CASEY EDWARDS – SECRETARY

Casey Edwards has been with PVS for over six years and has led several teams, including contract acquisitions, private locates department, dedicated locate department, and PVS's expansion into Alberta. Casey is constantly looking for innovative approaches to new and existing contracts with a focus on quality of product, efficiency of service, and customer satisfaction.

LITTLE KNOWN FACTS ABOUT CASEY...

- 1) Casey coaches hockey and used to own a hockey school.
- 2) Casey likes to golf.
- 3) Casey's favourite hockey team is the Montreal Canadiens.
- 4) Casey originally went to school for firefighting.

Can you spot the lie?

p: (905) 984-5414

e: c.edwards@pvslocates.com



BRAD ARMSTRONG – DIRECTOR

Brad Armstrong joined CAPULC in 2021 and was voted to CAPULC's Board of Directors in 2022. He has watched the damage prevention industry evolve dramatically throughout his 24-year career and is proud to be a part of an association that advocates for higher standards in the line locating and damage prevention industry. In addition to the Board, Brad is active in CAPULC's Education and Standards Committee. Brad is the owner of Walleye Locating Ltd., which he founded with his significant other in Wainwright, Alberta. Brad grew up in Central Alberta and has been involved in the line locating industry since he was 16 years old.

LITTLE KNOWN FACTS ABOUT BRAD...

- 1) Brad has a passion for fishing and is an enthusiastic sport fisherman.
- 2) He has been to Hawaii 12 times.
- 3) He's never been ocean fishing.
- 4) His biggest Walleye catch is 76 centimetres.

Can you spot the lie?

c: 587-281-3776

e: brad.arm@walleyelocating.ca



COREY BAKER – DIRECTOR

Corey Baker was voted to CAPULC's Board of Directors during the AGM this past April. Corey is the Coordinator of the Underground Locate department at Enmax in Calgary, AB. Corey obtained his Power Systems Electrician ticket while working for Manitoba Hydro prior to joining Enmax in 2014. He served on the Board of Directors for the ABCGA as well as sitting on the Best Practices Committee until its merger with AOC, and he was on the board of CRUDPC, a damage prevention committee in the City of Calgary. Corey is extremely invested in damage prevention as he works closely with excavators, locators, and other utility members within the City of Calgary daily.

LITTLE KNOWN FACTS ABOUT COREY...

1. Corey spends most of his summers out in BC's Shuswap region.
2. Corey has his pilot's license.
3. Corey was training as an auctioneer prior to becoming a PSE.
4. Corey rode bulls in the rodeo when he was younger.

Can you spot the lie?

p: (403) 369-2154

e: clbaker@enmax.com



TONY BRUNETTE – DIRECTOR

Tony Brunette is the President and Owner of Structure Scan Inc., a full-service Damage prevention company. Having worked in the industry since 1999, Tony is dedicated to the safety of the people who work on construction sites by providing the essential sub-surface information required by engineers and construction managers.

As an active participant in North America's damage prevention cause, he takes digging dangers seriously. Costly mistakes on construction and excavation projects are preventable through skilled, non-destructive testing and analysis.

Tony is a member of the Concrete Sawing and Drilling Association (CSDA) GPR Imaging Certification program, and he chairs the Locator Training/Certification Committee for the Manitoba Common Ground Alliance (MCGA). As a member of the industry associations throughout Canada and the United States, Tony is committed to providing the best damage prevention solutions possible.

LITTLE KNOWN FACTS ABOUT TONY...

- 1) Tony was born on an air base in France.
- 2) He prefers the country to the city.
- 3) Tony has a passion for Rap.
- 4) He worked on a cattle station in Australia.

Can you spot the lie?

p: (204) 777-6590

e: tony@structurescan.ca



MATT ETHERINGTON – DIRECTOR

Matt Etherington joined CAPULC back in 2015 and after being a vocal participant over the years was nominated as a director. Matt may well be CAPULC's youngest member, and his wide range of specialties and skills help bring a new perspective to the board. Matt has sat on the Education and Standards Committee since joining and is always open to joining more when needed. The passion for damage prevention doesn't stop there – Matt has also been a long-standing active member of the Best Practices Committee with the newly rebranded Utility Safety Partners (formerly the ABCGA) in Alberta. Matt is the owner and manager of EM Utility Locating Ltd. in Edmonton and has 13 years of experience in both private and contract utility locating, GPR, concrete scanning, surveying, training, and auditing.

LITTLE KNOWN FACTS ABOUT MATT...

1. Matt traveled all the way to Iceland just to hike up an active volcano.
2. Matt was once asked to play a younger Billy Bob Thornton while he was filming a movie in Alberta.
3. Matt has 11 fingernails after an accident as a child caused him to grow an extra nail on his pinky finger.
4. Matt volunteered with an adventure tour company on a tiny island in Vietnam.

Can you spot the lie?

p: (780) 222-9497

e: Matt@EMUtilityLocating.com



RICHARD LAMONTANGE – DIRECTOR

Richard Lamontange, his wife Lisa, and their family have owned and operated Absolute Locating Ltd. since 2002. With their main office in Oxbow, Saskatchewan, they have crews based throughout southern Saskatchewan and Manitoba. Richard has been active in the damage prevention industry for over 20 years. He has watched the evolution of the damage prevention industry in the oil & gas sector over the years and sees innovation and technology play a key role in that development. Richard brings a multitude of experience to CAPULC's Board of Directors and has served on the Best Practices Committee for the Saskatchewan Common Ground Alliance (SCGA) for many years.

LITTLE KNOWN FACTS ABOUT RICHARD...

1. Richard delivered their youngest child on the side of the road.
2. Richard's wife is always nice to him and thinks all of Richard's ideas are brilliant.
3. Richard's grandmother was a bootlegger during prohibition.
4. Richard and his lovely wife have four daughters all in university at the same time.

Can you spot the lie?

p:(306) 485-9992

e: richard@absolutelocating.com

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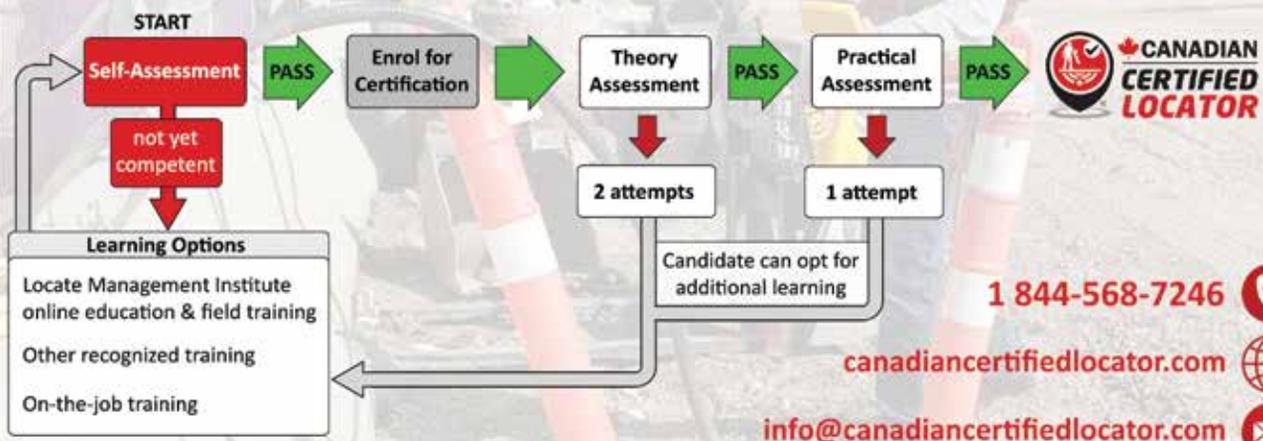
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WHO WE ARE



The Canadian Association of Pipeline and Utility Locating Contractors (CAPULC) was founded in Red Deer Alberta in April 2002 by a small and respected group of companies actively involved in the line locating industry. From its incorporation in 2002, CAPULC has provided leadership, enhanced the value, and gained reputation for the Canadian line locating industry as a whole. It has effectively served as a communication link, offering due diligence support amongst industry stakeholders, the public, the line locating industry, fellow industry associations and government regulatory agencies.

Over the past 20 years, CAPULC's members and member companies have devoted their time, knowledge, resources, and collaborated as one to develop a coordinated corporate direction. Since its initial inception, CAPULC's membership has grown from a small, vested group of companies to a membership that currently spans nationwide.

Who are we? From Pacific to Atlantic Canada, we are a united group. ●



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While CAPULC is volunteer driven, it does require financial resources to meet its objectives. The resources collected from sponsorships are used to support projects such as providing guidance and leadership to the industry endeavors of fellow ground disturbance partners, development of our National Underground Facility Locating and Marking Standard, conferences, tradeshow, the CAPULC AGM, "The Locator" trade publication, general meetings, and the important work of our committees.

2022 AGM Recap

The 2022 Annual General Meeting of the Canadian Association of Pipeline and Utility Locating Contractors (CAPULC) was held April 21st and was completely virtual, with 25 attendees taking part.

CAPULC President Jamie Andersen welcomed attendees and extended a warm welcome to new Administrator Tracey Paluck. Sincere appreciation was given to CAPULC's Gold, Silver, and Bronze Sponsors – past and present.

"Without our sponsors we wouldn't be able to do some of these extra projects and events that we like to do," Jamie stated.

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- Cansel
- Choice Survey & Construction Supplies Ltd.
- Motion Industries Canada

Bronze Sponsors

- Federation of Alberta Gas Co-ops Ltd.
- Plains Midstream Canada

New this year, pledges were solicited specifically to assist with the CAPULC initiative aimed at developing a National Underground Locating and Marking Standard. Without these funds, CAPULC would be required to canvas outside the organization for funds. It was important to CAPULC that this initiative stayed as an internally sponsored project so that the product belonged 100 per cent to our membership.

THANK YOU TO OUR MEMBER PLEDGES

- LN Land Development Technologies Inc.
- First Alert Locating Ltd.
- Walleye Locating Ltd.
- Probe Corrosion Services Ltd.
- Locate Management Institute
- National Locators
- Atlantic Common Ground Alliance
- LineStar Utility Supply

During breaks throughout the meeting, videos were played from our pledgers. Pledges can still be placed anytime by emailing admin@capulc.ca.

With votes tallied, CAPULC saw change in its Board of Directors. A sincere thanks to outgoing board members Cody Stocks and Matt Cooper – thank you for your time with CAPULC. A very special thank you to Randy Palaniuk, as he moves on from his many years in the leadership of CAPULC. Randy's commitment to CAPULC and his time and effort volunteering to help in the growth of this organization has been extremely appreciated. Congratulations were offered to CAPULC's new and incoming board members Matt Etherington, Corey Baker, and Brad Armstrong. (Check out the article on the 2022-2023 CAPULC Board of Directors and see how well you know the board members.)

The Treasurer's Report was delivered by Lance Norman. He mentioned that after a reduction in Regular Member fees due to the pandemic, as of 2022, annual Regular Membership fees will revert to the pre-pandemic \$1,000. A short discussion surrounding the possibility of adding a new membership level ensued. Feedback was gathered from the meeting attendees and then left to a vote, which was carried. Research will commence to develop an Individual Membership.

Committee Co-Chair Donald Richard led us through an Education and Standards (E&S) Committee update. The focus of the E&S Committee had been to develop a National Underground Locating and Marking Standard to ensure consistent practices across the country while allowing for provincial variations in the future. A sub-committee was created to liaison with a third party, Jiva Consulting School of Energy and CAPULC's working group to build this standard. Committee members dedicated a substantial amount of time over a few months to expedite the development process on this standard. Donald explained the guidelines for the committee and wrapped up his detailed presentation, explaining that we hope to see the draft version of the document near the end of May.

He acknowledged the E&S Committee members, their employer, and noted their Provincial representation and associations they represent.

EDUCATION AND STANDARDS SUB-COMMITTEE MEMBERS:

Brad Armstrong (Walleye Locating Ltd.) – AB

Tony Brunette (Structure Scan Inc) – MB

Brian Kidwell (Kidwell Consulting Services) – BC

Richard Lamontagne (Absolute Locating Ltd.) – SK

Craig McClintock (Liberty Utilities) – ATLCGA

Lance Norman (LN Land Development Technologies) – AB

Donald Richard (Locate Management Institute) – NB

Amir Saleem (SPX Corporation) – ON

Jamie Andersen (CAPULC President) –

Liaison between Jiva & CAPULC

We then moved on to the Advertising, Marketing, and Communications (AMC) Committee report with Gary Mason. This committee was newly developed with only a few members, so they are looking for others to join. Revisions on Trade Show materials had been their focus now that face to face networking is starting to be more available. As well, CAPULC's Youtube, Linked In and Facebook presence had been established, and they were recently able to post some fun videos for our pledges and our sponsors. Please go check them out. The AMC Committee has many goals, and if there's anything our members would like to see, please don't hesitate to let them know. He announced that the website upgrade was now complete and that work on future upgrades and income generating ideas has progressed. The 2023 Locator Magazine release was set for October/November, just before our next General Member meeting; notifying the members to watch for updates and calls for submission. The magazine is distributed at trade shows, outside vendors and our membership so it is a great communication tool. New to this 2023 issue will be a feature section on "Stories from the Trenches".

Gary also reminded members of CAPULC's Logo Usage Guidelines. These guidelines were created to ensure the appropriate use by all members. He wanted to promote CAPULC membership and trade partners to display the logo wherever they can.

In wrapping up his report, Gary shared that CAPULC is already in the planning stages for next year's AGM. CAPULC wants to build a committee to help with the planning and execution of the 2023 event to celebrate CAPULC's success over the past 20+ years. Those interested in joining this committee can contact Tracey Paluck at admin@capulc.ca or Gary Mason directly!

Emphasis was stressed on the number of Trade Partner agreements CAPULC has completed to date. Jamie explained

that these partnerships are important in sharing information for our membership, and it boosts our marketing reach since our messages are distributed to all their members. Trade association agreements are complete with Infrastructure Resources, BCCGA, SCGA, MCGA, and ATLCGA, and we're always looking at other potential partnerships.

Moving through the agenda, we discussed USP draft legislation, which was set to be released and now includes overhead line content. On March 21st, 2022, USP released their first version of this draft legislation for public comment for 30 days, which concluded on April 19, 2022. There were seven individual comments submitted: two gas co-ops, three shallow utilities, the City of Calgary, and one large contractor. USP will be responding to all comments. The next draft is set to be posted to the USP site for May 2nd and will have an additional 30 days for comment. Then they will take required steps with Alberta Legislation to hopefully move it forward.

The 2023 AGM and Safety Conference Tradeshow was highlighted, and with the cancellation of this year's face-to-face event, we were required to reschedule with the same venue for next year. This means that next year's AGM is already set for April 20, 2023 at the Marriot in Calgary. Stay tuned for further information. We look forward to seeing everyone at next year's trade show and full conference event! If you're interested in becoming a trade show exhibitor or a sponsor, please contact the CAPULC administration office at admin@capulc.ca or call 1-888-492-8279.

Once the AGM ended, there was a short break as we moved ahead to our Keynote Speakers, Pamela Morgan of Key Instincts, who discussed "Building your Team – Hiring Practices", and Robert Row, MBA, of DBYD Certification Ltd.

Pamela Morgan has loved calling Okotoks home for over 24 years. Taking her 30+ years of executive business experience and her down to earth "we are better together" attitude, Pamela founded Key Instincts, a multi-dimensional, value-heavy Human Resources firm based in her hometown. Pamela gave a highly informative talk about the best practices in hiring and recruitment. As hiring practices continue to evolve in the workplace, she said, we consider our culture and brand fit equal to the skill competency that a candidate can bring to our organization.

Her talk took us from the beginning stages of "Where is the hiring sweet spot and how will I know?" right through to the final stages of "Breaking up shouldn't be hard to do – respectful steps to take". It was an excellent and relevant conference addition!

Ten knowledge-testing locator questions + hardcore locators and ground disturbance experts from throughout Canada = a fun, lighthearted, competitive activity during a break in presentations.

Our final presentation was with Robert, a CEO with more than 35 years experience in the commercial, residential, and civil industries in a variety of roles including CEO, training manager and building contractor. Robert provided pertinent information about the DBYD Certification Certified Locator program. He started his presentation by explaining that there are currently over 850 certified locators in Australia. He said to gain certification, locators must pass a comprehensive theory exam and practical field assessment conducted by an industry assessor. The assessment includes auditing equipment for compliance, workplace safety knowledge and compliance with safe OHS practices.

Robert reported that a major gas facility owner has reported an astonishing 40 per cent reduction in damages for their field

crews installing on their networks since engaging with DBYD Certification Ltd. He said through targeted skills development programs, 55 locators employed by gas utilities have achieved certification in the state of Victoria, and he noted that they're about to roll out a similar program for water utilities. There were many questions, and we thank him for his participation, especially with the vast time change!

The final agenda item was extremely fun and a new addition: Locator Trivia brought to you by our AMC Committee! Ten knowledge-testing locator questions + hardcore locators and ground disturbance experts from throughout Canada = a fun, lighthearted, competitive activity during a break in presentations. Our winners are hopefully happy with their prizes! ●



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Message from the Atlantic Canada Common Ground Alliance



Well, 2022 has marked the transition back to the “new normal”, and the members of the ATLCGA have welcomed it with open arms. It has been a very busy year for us in Atlantic Canada with member companies getting together early in the year supporting our annual joint advertising campaign for Dig Safe Month. For this campaign, we target all the major cities and towns in New Brunswick and Nova Scotia and get some great Click Before You Dig billboards, bus transit shelters, and bus advertising – this approach allows all members to cost share while ensuring we deliver the same consistent message across the region. The ATLCGA has also made a significant effort this year working with Info-Excavation to create a social media campaign for damage prevention – a similar campaign has been used very successfully in Quebec.

The next focus of 2022 was continuing to work and engage the local power utilities in this region to join the ATLCGA. We have been successful with some local power utilities coming onboard recently as members. Our long-term goal is to have all the underground facility owners in the Atlantic Region become members of the ATLCGA and join Info-Excavation as their regional locate notification system. We know that working toward a true one-call system will ultimately provide the best chance of damage prevention and we continue to hear from the excavating community how this needs to be adopted in Atlantic Canada.

In Q4, the ATLCGA is planning to get together for a Board and General Meeting, and although the ATLCGA has continued to meet multiple times per year, it has been virtual since February 2020. I think most people have had enough time on Microsoft Teams and Zoom during the past few years (although they do have their time and place) that in-person meetings have seen a resurgence in popularity recently.

Another great event this fall will be a few of our members

heading to Whistler, BC for the CCGA's 2022 Symposium. For many people, travelling is almost novel again, and so being able to travel to a beautiful province and region to spend a few days with other passionate damage prevention and public awareness people is going to be very exciting. Our hope is that members will be able to share their learning experiences with other ATLCGA members at our annual meeting later this year.

Thanks,
Scott Boudreau, Administrator, ATLCGA ●

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SCGA celebrates 15 proud years of promoting public safety!



By Ron Podbielski & Shannon Doka, SCGA



Do you remember the year 2007? The third installments of the Spiderman and Shrek movie series were the top grossing movies of the year. Apple released the very first iPhone. And in November, the Saskatchewan Roughriders, led by quarterback Kerry Joseph, claimed their third Grey Cup with a victory over the Winnipeg Blue Bombers in Toronto.

But there was also an especially important milestone in the world of public safety that year.

That's because the Saskatchewan Common Ground Alliance (SCGA) was formed that year. We're proud to be celebrating 15 years of a network of businesses and communities committed to damage prevention in our Province.

Prior to 2007, there were many parties who saw a necessity to educate the public on the need to protect not only the billions of dollars of underground infrastructure that provide the services we rely on, but also the safety of those working around it.

But mostly, these companies and communities were pursuing their safety programs in individual ways, without a wider network to share resourcing, discuss best practices and coordinate activities. From its modest beginnings, the SCGA grew to offer members a way to work together – right at a period when Saskatchewan's economy (as well as its digging activity) began to experience tremendous growth.

Over the past 15 years, the SCGA has collaborated tirelessly with its partners to promote safe digging and construction practices to frontline workers and to the public.

The SCGA spring series of contractor Dig Safe breakfasts in communities across Saskatchewan has been a tremendous tool in promoting these safety messages to thousands of frontline workers.

The SCGA has also developed a series of professionally produced education videos on a variety of topics, as well as safety information cards and resources on its website at www.scga.ca. A quarterly newsletter is produced to share, and we have social content on Facebook, Twitter, and Linked-In channels.

Our partnership with Sask1stcall.com has allowed us to take our safety focus to the tens of thousands of digging projects every year in Saskatchewan. And our members share a commitment to promote best practices through joint discussion and tools like the Damage Information Reporting Tool (DIRT).

Another highlight was the 2021 launch of our Youth Ground Disturbance Program, a free safety training initiative for students aged 14-21, delivered in cooperation with the Saskatchewan Safety Council and Heavy Construction Safety Association of Saskatchewan.

We are proud that today, we have grown to 95 members and



sponsors who share our vision of a safe digging community where all work safely, come home to their families at day's end, and protect the vital underground infrastructure we all depend on.

Thank you for your support, and we look forward to where the next 15 years takes us...together in partnership with all of Saskatchewan. ●



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CCGA Best Practice Committee pushes forward

By Gordon Campbell, Technical Training Specialist, Aecon Utilities

Despite the pandemic that has affected all our lives, the important work of damage prevention in Canada continued the past two years at the Canadian Common Ground Alliance (CCGA). Forced to move in-person meetings online and the local restrictions that impacted the Regional Partners ability to meet, the national Best Practice Committee continued to push forward the development of several best practices. In early 2022, the CCGA will proudly release one of its signature publications: Best Practices, version 4.0.

The CCGA Best Practice Committee does the important work of reviewing suggested changes to the National Best Practices and taking part in the consensus-based process that determines what our guiding best practices will be. It is critical to the integrity of that process that the highest number of stakeholder groups possible are represented at the table. No single interest group can fully understand the most important elements in keeping people safe, so every group's viewpoint needs to be considered.

A best practice is by definition a proven methodology or technique that most reliably gets to the desired result. A commitment to implementing best practices means a commitment to use all knowledge and technology available to be successful.

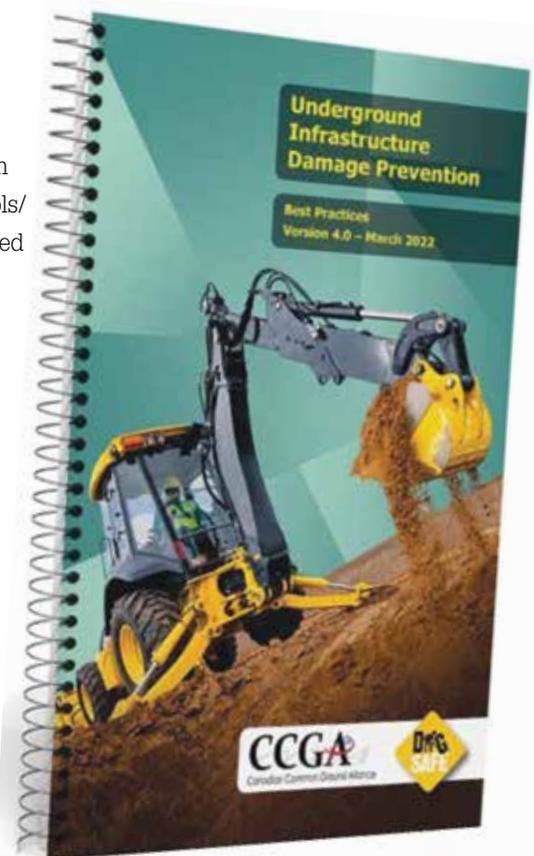
SEVERAL IMPORTANT NEW AND REVISED BEST PRACTICES WERE REVIEWED AND PASSED BY CONSENSUS IN 2021:

- **BP 4-16: Marking Preservation** – A statement on how to preserve locate marks and avoid unnecessary remarks. Defining the steps necessary to adequately protect the marks.
- **BP 4-11: Locate Verification** – A statement on providing clarity around what constitutes a complete locate package. Adding the locate confirmation page can reduce the confusion over which utilities were notified and which ones might have been overlooked.
- **Glossary** – Added a definition for hand digging which matches the CSA Z247 definition of hand digging. Z247 states that hand digging is “any movement of earth using a hand

shovel,” and “this does not include using picks, bars, stakes, or other earth-piercing devices.” It also defines the hand expose zone as the “area around the underground infrastructure where ground disturbance by mechanical equipment cannot take place until the underground infrastructure has been exposed by safe ground disturbance practices such as hand digging or vacuum excavation.”

- **BP 4-2: Privately Owned Facility Awareness** – A statement on awareness of private facilities and the steps to take to identify them. Privately owned buried facilities are typically not marked by representatives of the public utility owners beyond the demarcation point for each utility. The excavator should have all known private facilities in and near the work area identified, located, and marked prior to excavation activities.

During 2021, several members of the committee participated in a government sponsored workshop on underground strikes. Based on the list of controls/solutions provided by the subject matter experts from industry, research, and government (regulator), the number one action item was “Develop best practice guidelines for planning and working in the vicinity of underground utilities.” This





includes roles and responsibilities to promote accountability among supervisors and workers as well as One Call, utility owners, and municipalities.

WHAT WE'RE WORKING ON IN 2022

The CCGA Marketing & Education Committee is undertaking a review of the CCGA Best Practices section 7.0 which describes Public Education Best Practices on Damage Prevention. The last revision made to this section occurred in 2010, long before the advent of social media, the rise of YouTube, the use of podcasts and other current communication methods. Several proposals have been submitted to modernize existing practices by creating "continuing awareness communication plans."

IN SUMMARY

The pandemic has restricted all types of industry meetings and groups. If it was not for the dedication of the members of the CCGA Best Practice Committee and the continued shared responsibility of the Regional Partners, we would not have been able to deliver what we did in 2021. ●

General Member Meeting **— December 8, 2022 • 10:30 am —**

*All members can visit our website under Events.
Just RSVP to join us in person at this meeting in Edmonton.*

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CAPULC targets underground facility locating and marking standard

By Donald Richard, Chair, Education and Standards Committee, Locate Management Institute

It has been a banner year for CAPULC as they focus in on delivering an underground facility locating and marking standard!

Under the direction of the CAPULC Board of Director's and through the support of CAPULC members, an Education and Standards subcommittee was established to work with an outside consulting firm to develop a standard for planning and conducting underground facility locating and marking in Canada.

The Education and Standards subcommittee consisted of volunteers from across the country – most of these volunteers are from the larger CAPULC E&S committee. These individuals, with the support of their employers, have dedicated a substantial amount of time over several months in working groups (in collaboration with JIVA Consulting, School of Energy) to build the standards document. They represented various stakeholder groups (locators, facility owners, surveyors, educators and trainers, and manufacturers) and provinces (AB, BC, MB, NB, ON, SK). Therefore, CAPULC would like to acknowledge them, their employers, and the province they work in, or the association they represent.

CAPULC would also like to thank all the sponsors and pledges. Without their support, this wouldn't be possible.

The objective of the document is to develop a national line locating and marking standard to ensure consistent practices across the country while allowing for provincial variations in the future. The purpose is to provide underground facility locators with the necessary background and context, beyond existing regulation, regarding best practices for underground facility locating. The document is not intended to be used instead of training, certification, regulation, or company specific practices; rather, it should complement them.

The guiding principles for the standard are:

- The standard should be developed at a federal level

— They should be jurisdictionally agnostic (i.e., accurate for all jurisdictions, except in areas with specific provincial requirements)

- They should be company agnostic (i.e., content should be relevant to the range of industry stakeholders such as facility owners and locators)
- Contents of the standard should reflect best practices for both public and private locating and marking
- In the absence of consensus, decisions will be reached by majority vote of those present in the working session.
- For the working sessions to be productive, feedback is to be provided in advance of or during the working sessions
 - Constructive and focused on technical content

The scope of the standard is that it is applicable to all underground infrastructure locators across Canada; it applies to locating multiple infrastructure types including electricity, gas, petroleum products, communications, potable and reclaimed water, sewer, and steam; and it focuses on the steps involved in the locating process and the information required to execute those steps.

The team from JIVA and the subcommittee referenced various information sources, including UULL Board Policy from ASTTBC; Canadian Locator Technician Standard from CAPULC; The Best Practices Manuals from both the CCGA and CGA (US); the UFL Manual from LMI; The Theory of Buried Pipe and Cable Location from RD; and The Underground Focus magazine from Staking U.

Main topics within the document are:

- Terms, definitions, acronyms, abbreviations
- Foundational information
- Locate process and locator responsibilities

Foundational Information include:

- Roles – public (one-call response on behalf of facility owners) or private (hired directly by ground disturbers)
- Code of conduct – ethically, professionally
- Worker and site safety considerations including authority to “stop work”
- Compliance with environmental considerations
- Records management and maintenance
- Qualifications and certifications to achieve competency – theory, skills, experience and behaviour, and assessment
- Underground facility infrastructure under their responsibility
- Locating equipment – types, use, methods – advantages and limitations, calibration
- Facility marking – APWA colour code and marking guidelines, electronic markers
- Incident reporting – reasons and corrective actions, DIRT

The standard documents the locate process and locator responsibilities from receiving a locate to sending final documentation.

Areas that are relevant through all phases of the underground facility locating and marking process include:

- Receiving a locate request to ensure the necessary information is obtained, and to plan a response
- Planning the locate by gathering information sources such as records from drawings, surveys, third party databases, etc.
- Performing visual observation and inspection, method selection(s), and marking procedures at the work site
- Creating final documentation including sketches based on information sources and the locates performed
- Sending final documentation to the requestor and ensuring the requestor receives and understands all applicable documentation

The standard includes a Continuous Improvement Log for documenting and tracking changes, additions, deletions, or any other modifications to the standard.

As the subcommittee progressed in creating a working document, they provided periodic updates to the larger Education and Standards Committee. Once the subcommittee

was satisfied with the working document, they reviewed it with the larger committee for comments and feedback. In June, CAPULC released the document for a 30-day public consultation and is working on addressing responses. They plan on releasing the document for final consultation in September and subsequently release of the first edition in the Fall. ●



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LOCATOR STORIES

from the trenches

It had been a very long day; both crews were completing private locates, and we'd been walking the entire day through mud and crops. As we got back to the truck, my other three co-workers decided to have a little fun. While walking in the crops, we had encountered mice, birds, and the odd snake. I really dislike snakes. As I was packing up the truck, my co-workers tied a string to a stick and tucked it under the truck. As I bent down to take my boots off, they pulled the string, which drug the stick from under the truck looking much like a snake. Needless to say, I screamed and jumped right out of my boot. As they died laughing, we all agreed that they "got me" and it was great end to the day. Too bad they got it on video... Sometimes the best part of work is laughing with coworkers.

— **Grande Prairie, AB**

With all the miles that we can cover in a day, we can run into just about anything. One winter day, the snow and wind had started to blow hard enough that it was tough to see across the highways. I'd been working in the rural areas to

complete locates but due to weather had to shut down early. The wind was starting to polish off the highway and drifts were starting to block roads as I headed back into town.

I came around a corner and noticed an old Cutlas in the ditch; the windows were starting to fog up, and I saw the door crack open as I approached. It was an elderly lady. I stopped to help. With the roads in these conditions, it would be a few hours before a tow truck could get there. I turned on my hazard lights and hooked up my tow rope. Within about 15 minutes, I had her back on the road. She thanked me over and over. Just to be sure, I followed her into town. I was proud of myself for having done a good deed. The next day, my employer called me to ask me what had happened. As I told the story, he explained that one of our company clients had called to express their great gratitude. I had been in the right place at the right time and was thankfully prepared. Sometimes having the safety gear and being prepared isn't always just for your protection!

— **Dawson Creek, BC**

It was a really nice summer day. My assistant had loaded our gear in the back of the truck, and we hopped in and were heading to our next locate. We were driving down the gravel road, talking away, until I noticed sparks coming from the back of the truck. I immediately pulled over to discover the tailgate dragging along the gravel. The latch had been giving me issues and I had failed to let my assistant know. How do I explain this one to the boss!

— **Grande Prairie, AB**

I can imagine how stupid I looked. Walking one minute and then chest deep in the frozen mud. Holding my locator in the air to save it from the water. Now how do I get out? Luckily, we weren't far from the hotel and my crew leader took pity on me. Rockstar fast shower, dry clothes, and back to work! This would be my lesson: you won't catch me without spare dry clothes – next time I may not be so lucky! But hey, the machine was safe, and we could keep working.

— **Edmonton, AB**

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Many days working in the spring, we're used to having to deal with mud. We were completing a private locate on a well site, which had been a bit muddy. I could tell my helper was getting tired from hauling all that extra weight on his boots and slipping and sliding everywhere all day. We had one last thing to do near the riser, so I gave him the machine and said I would tie on to the riser if he could just do up a couple lathe stakes for me. I took one step and sunk up to my knees. I couldn't move! I yelled over to my helper and asked him to bring the tow rope from the truck and a board or something for me to stand on. He stated that since I was already stuck there, he could do this last locate. I can imagine it was quite the site with my struggling to pull myself out. He then handed me the tow rope so I could hold my balance. I threw the board in the mud so I could try to step up into it...after 10 minutes of fighting, I managed to get myself up and out. There was no way my boot was coming out of that mud. It was suctioned in, and there was no way we could dig it out. I had to strip out of my coveralls, socks, and one boot to get into the truck for the drive home. My helper had conveniently taken

a few pictures as evidence of the "mud". Two days later my client delivered my boot back to our office. I now carry extra boots with me!

— **Grande Cache, AB**

Working in the industry always has its ups and downs. One thing to always be mindful of are the landowners and their opinions on the work being conducted on their land. A few tips for projects large and small: always check with land groups prior to entering, and always take pictures of gates closed (that you closed them!) with timestamps. If you encounter someone who is aggressive and threatens – always leave. Do not try to engage or argue. Leave the situation to de-escalate. Follow-up with internal or project personnel. Document everything. Keep yourself safe.

— **EM, AB**

Using EM locating equipment can be fun to find non-target items! We have found cans, buckets, old tools, fence wire! Fun times hunting for stuff! You never know what they left behind 50 years ago!

— **EM, AB**

MUSKRAT VS. LOCATOR

As locators in Canada, we encounter all variations of domestic and wild animals. The most common stories of encounters for a locator usually consist of bears, domestic animals, wolves, and the occasional big black moose sighting. This story is one of the stranger encounters.

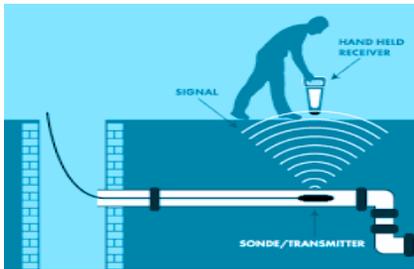
On a cool February afternoon in the East Alberta prairies, a locator was frost pinning lath into the frozen ground. Suddenly, out of nowhere, the locator caught something out of the corner of their eye. An aggravated ball of brown fur, with beaverlike teeth bared, it charged straight for the locator. Reacting quickly, the locator stood up and backed away as a bloodcurdling scream alerted the other crew member. The crew members took photos from a safe distance as the animal scurried away. The slightly shocked crew determined that the locator had been attacked and almost bitten by a muskrat. Thankfully, no contact was made between the animal's teeth and the line locator. Doing the job that line locators do, awareness of surroundings is always key. You never know when a vicious rodent may be lurking in the shadows.

— **Alberta**



Sondes

As locators, we are often asked to locate everything. Most people have no idea that there is a vast number of non-conductive utilities buried right under their feet, such as non-metallic conduit/ducts, drains or sewer, which are commonly made from plastics (PVC, HDPE), asbestos, and concrete. Some older pipes (which are still in use today but are being replaced) were made from brick, wood and, even tar and are sometimes very difficult to find. Sondes are often overlooked as a useful locating tool.



HISTORY

“Sonde” is a French word that translates to “probe” or “beacon”. It is a self-contained transmitter that emits an electromagnetic (EM) signal and can be typically attached to flexible rod and pushed along inside the non-conductive pipe, making the signal detectable from above ground.



HOW THEY WORK

Most sondes (except ones incorporated with inspection cameras) are battery powered, so the maximum transmission depth will depend on the size of the

battery – the larger the power source, the deeper it can transmit. These come in a wide variety of sizes and frequencies that the diameter and depth of your target pipe will dictate. Micro-sondes (six millimetres in diameter) are for very small and shallow conduit runs, while some much larger sondes are made for deep drainage lines and can be the size of a football.



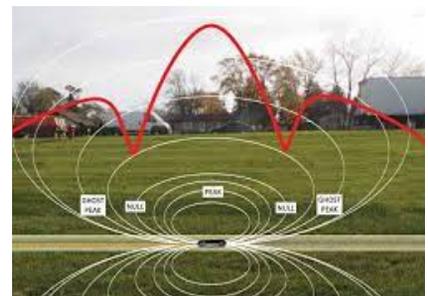
OPERATION

Before we get started on the job at hand, it's always best to check that both your sonde and receiver are working properly and you're able to get a good strong signal response before ever putting the sonde down the hole. It's much easier to troubleshoot when the sonde is right at your feet. One of the most common problems comes from the battery being too low to sufficiently put out a signal. The other problem might be as simple as checking that the receiver is tuned to the proper frequency (sondes will usually have a frequency stamp). One thing to consider is that a sonde can't transmit through metal covers or plates.



DEPTH

Different locator manufactures may have different sonde “views” that help aide the user to pinpoint the sonde's exact location and depth, which become hugely important before digging even begins, minimizing excavation costs. The sonde frequency pattern is different then a regular round pattern we're used to seeing on pipes and utilities. The sonde signal pattern is oblong and generates from the centre in a 360° arch. This means that although it can be easily traced, you will need a receiver that has a dedicated “Sonde Mode” that can accurately calculate depth scale. Every sonde produces three signals: the main signal at 90°, and two “ghost” signals at 45° (one in front and one behind, or head and tail). These ghost signals can be confusing for the novice, but they can also help with calculating depths in congested areas. Because the ghost signals are always at 45° from the centre of the sonde, the distance from the ghost signal to the main signal has to the depth. Best practice is to mark at least two of the three signals on the sonde. This proves not only depth but also the direction, as these signals are all in a straight line.



That's how easy it is to locate a sonde. It's really quite simple with very few interference issues to worry about, and locator manufacturers are constantly advancing technology that makes our work easier and our lives safer. ●

GROUNDING: The foundation for a great locate

By Jeremy Long, Canadian Sales Manager

Electromagnetic utility locators work because of an electromagnetic field that is generated by our transmitter and then pick up by the coils in our receiver. This field is an alternating current that is changing direction at various times per second, whatever we pick in our transmitter. This gives us our frequency in hertz (Hz), or kilohertz (kHz), such as 8 kHz or 8.19 kHz.

To generate this current, though, we need to have continuity, some form of a return path to and from our connection leads. We do this by placing a ground stake into the earth and hoping that at some point our conductor (the target being located) has a ground on it and hopefully in the direction we wish to locate. Or if there happens to be enough of that conductor laid in the ground – miles or kilometres of it – the signal will be able to travel along it and naturally bleed off through the earth back to our ground stake. Without this, we are unable to generate any current flow, and therefore no frequency.

Being that our ground stake is the foundation for a locate, it is imperative that we get the best connection to the earth as possible. As well, make sure our signal wants to travel along the conductor instead of right back to our ground stake.

How can we ensure we have a good connection to earth?

Start by using the ground stake supplied with your kit or larger. We supply the most reasonable sized ground stake that will preform up to our specs; however, I do know that some locate firms like to supply their own larger ground stake, and that is great! Do not use pin flags, screwdrivers, or the leads themselves pushed into the dirt – yeah, I see you out there! Also make sure you are extending it as far as possible at a 90-degree angle from the suspected direction or your target. Our signal is lazy; if you place the ground close to the target, you're asking



it to only travel a short distance because it will see that ground and bleed off quickly back to it.

Therefore, it's a great idea to carry a ground extension, a spool of wire with a clip on the end that you can strip back in various spots along the wire. This will give you the ability to extend your ground stake beyond, say, a parking lot, sidewalk, out of a building, or away from a congested area to help stop ghosting or jumping onto another conductor. The farther away you can get the ground stake, the stronger and farther your current will travel on the conductor you are connected to.

Now in terms of a signal clamp, for it to work, there needs to be a ground ahead and behind the clamp. For example, on a primary electric cable, there is a concentric neutral or ground; inside the transformer they peel away the concentric and connect it to a ground bar. If you clamp above where that is peeled off, you will have little to no signal. But clamp below it and the current will flow very well as you now have continuity.

So, if you make your connection and can't seem to pick up a good signal, always check your ground stake, push it into the earth deeper, move it to a different location, extend it away farther, or in dry conditions, try wetting the soil. Anything you can do to improve your ground will ultimately improve your locate. This is what sets apart the good locators from the great locators! ●

Dollars & Sense

The art of hiring

By Pamela Morgan, Key Instincts CEO



What's the real cost of employee turnover and poor hiring decisions? For entrepreneurs, it's a lot more than you'd think. Statistics show the average cost to an organization is \$48,000 every time they have to replace an employee.

When you're running your own business or Startup, you're used to handling everything on your own — especially in the early years. You are continually asking questions, determining and weighing variables, and examining every cost associated with your business to ensure everything stays within budget. But when it comes to building out your team and hiring employees, you might be at risk of falling into the “short-term gains and long-term losses” trap.

When adding in the burden of seasonal work, this problem is elevated. Do you a) Hire quickly out of desperation (short-term gain with high long-term employee turnover) or b) Wait to do the process right and hire out of necessity (short-term loss with long-term gain)?

The problem with waiting until the last possible minute to hire is that you'll often end up with someone who isn't properly qualified for the role, doesn't intend to stay and grow in the role, or isn't the right fit for your company culture. This

often results in a considerable amount of money and time spent on a new employee's training, subpar job results when you're already in a crunch, and a disgruntled employee who promptly quits from the stress of mismatched role expectations. But you have a business to run, and you need those boots on the ground too.

You don't always have time to plan far enough ahead despite knowing that making smart hiring decisions is an absolute necessity. So what's the answer to strike a balance? How do you make sure you're hiring the right people? Let's look at the hiring process in more depth.

To start, here are the five major factors to consider when weighing the cost of hiring a new employee:

1) EMPLOYEE VS. OUTSOURCING

Most entrepreneurs think that they can handle the hiring themselves. After all, who knows the business better than you do, right? While this works in some cases, sometimes it's best to leave your people and culture to the people who know people best: Human Resources. HR departments exist for the entire purpose of people. HR professionals know what to look for, how to ask specific questions and find out the exact information you need to ensure your candidate is the

best fit for your team. Do what you do best and outsource the rest.

2) PAY SCALE

Pay scales help to ensure that you're paying fair market value for your potential new team members. Using a service like Payscale.com helps you to check that you're not overpaying for a candidate, but also that you're getting the best value for your money. Sites like these allow you to assess your candidate right down to the fine details to keep on track.

3) PAYROLL/HOURS

Look at your payroll cost vs. benefits provided to your candidate. Do you provide benefits? Do you provide a health spending account? Do you provide profit sharing? These are all factors you need to analyze to determine the best value for the position. Take the necessary time to research what your employees want so your offer to your candidate is the best possible outcome.

4) TRAINING COSTS

Remember, there is a cost to training your employees. You are paying them while they are being trained, and you are paying someone to be the trainer – this includes yourself if you are the primary

trainer. For contractors, this may look different as they don't fall under the same labour obligations as employees do. Hiring the right person the first time saves you the cost of having to retrain someone new when the wrong person doesn't work out.

5) RETENTION VS. TURNOVER

Employees tend to stay where they feel valued and appreciated. Statistically, "compensation and perks" is number 7 on the list of reasons an employee would stay at their current job, with number 2 being "value and appreciation" and 1 being "training and development." If you want return on your investment, valuing your employees ranks high.

If you've weighed the costs of hiring a new employee and you've decided it is time to move forward, Key Instincts always recommends the following four-step process:

1) Determine needs and expectations.

Take the time to sit and evaluate what your needs are. Look at availability and what type of time commitment you need from them. What kind of experience do you need? At Key Instincts, we hire based on the 80/20 rule: 80 per cent Behaviour/20 per cent Skill This is because it is much easier to teach skills than to change someone's behaviour. If a candidate's behaviour matches that of your current brand-culture fusion, this is the first sign that they are good for your organization.

2) The search: Where do I find them?

There are plenty of places to find

candidates. At Key Instincts, we believe in Indeed.com, as it allows you to fully customize your application process. Another great way to find quality candidates is through your existing employees. No one advocates more for your culture than the people who work in it every day. Talk to your employees!

3) Interviewing: How do I interview, vet, and win them?

You should begin the interview process with an initial screening, being very specific with questions and ensuring you're hitting all your needs. One question that the Key Instincts team uses in interviews is "How does your family describe you?" While this may not seem like a relevant question, it's important to note as, generally, that's the person you are going to get.

Your three-step interview process should consist of three interviews:

1. Initial Screening
2. Deep Dive
3. Final Interview – So how do you win them?

Perks: Let them know why they have a seat at your table and the value they will bring ■ Development opportunities ■ Compensation

Now that you've made your decision, it's time to hire! Enter negotiations and ensure you're being clear about what you're offering and allow the candidate to do the same. So now that you've hired your candidate, you need to begin setting them up for success.

There are four main factors to this:

1. Onboarding
2. Training
3. Continuous Development
4. Great assets

Though we've broken down the process for you in this article and given you a cursory glimpse at how to navigate your way through it, keep in mind that you don't always have to go it alone and that when it comes to a big investment like hiring, it'll always save you more, in the long run, to get it right the first time.

If you're looking for help with your talent acquisition, we're here for you. Remember: do what you do best and outsource the rest!

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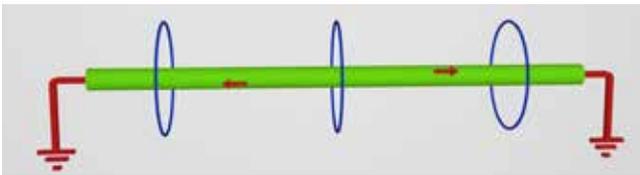
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Theory of electromagnetic locating

By Sam MacDonald, Locate Management Institute

Contrary to what a layperson may think, electromagnetic (EM) locators do not locate the buried pipes and cables – they detect the electromagnetic field or “signal” generated by an alternating current (AC) oscillating (moving back and forth) and flowing down or along buried facilities.

EM fields are generated by directly or indirectly applying a signal to a buried conductor, which then travels along the facility. The signal radiates a cylindrical shape around a facility unless there are other conductors nearby that distort the shape. Without AC current flowing down a facility, there will be no signal generated for the receiver to detect.



Applying signal.

The main components of most EM locators are:

- Transmitter;
- Receiver;
- Direct connection cables and ground rod; and
- Inductive clamp.

It's important to understand that EM equipment cannot detect all facilities under all situations and does not provide X-ray vision.

There are two types of EM signals—active and passive. Active signals are generated by applying a signal from the transmitter to a conductor. Passive signals originate from sources other than the transmitter, such as radio towers or energized cables.

Active signals are deliberately applied to a facility from the transmitter, and there are three ways (methods) to apply an active signal:

1. Direct Hook-Up (Conductive) – the positive clamp is connected to a suitable access point and the negative clamp is connected to a ground rod.

It is important to place your grounding rod at a reasonable distance from both the transmitter and connection point. However, if the ground cable crosses over other facilities, the signal may jump onto other nearby conductors as well as the target facility. This is known as unwanted coupling.



2. Inductive Clamp – the inductive clamp is placed around the facility which may improve isolation of the facility. Isolation minimizes the transmitter's energy from coupling to non-target conductors.



3. Inductive (Induction) – the transmitter is positioned above and in line with the suspected path of the facility. This can be especially useful to search for unknown facilities.

Passive signals originate from sources other than the transmitter (i.e., electrical power, broadcast waves).



The three common passive locating modes (methods) are:

1. **Radio** – to detect stray radio signals radiating from man-made technologies that re-radiate or couple (bleed/jump) onto buried facilities within the signal range.

2. **Power (live AC cable)** – to detect live power cables that carry electric (AC) current.

3. **CPS (cathodic protection system)** – to detect cathodic protection currents used to protect conductive pipes.

Passive signals can be quick and easy to detect facilities including unknowns; however, the signals are unreliable, unable to distinguish between nearby conductors, and insufficient as a stand-alone locating method.

Although you may have directly connected to, or clamped around, a specific facility, it does not mean that the signal you are receiving is from that same facility. Therefore, regardless of the equipment used or the methods employed to locate underground facilities, it's imperative to perform another form of facility verification. ●

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The thorny issue of abandoned infrastructure

By Gordon Campbell, Technical Training Specialist, Aecon Utilities

Every day in Ontario, hundreds of excavations expose abandoned infrastructure in their work area. What happens next is full of confusion. While it seems a straightforward issue to deal with, it's full of positions that make the whole issue very complicated.

Back in 2015, the CSA Z247 Technical Committee tried to tackle the issue. After hours of very charged discussion, they could not agree on how to definitively deal with the issue. They did provide guidance to the excavator on how to handle the issue from a known owner and unknown owner point of view, but an overall solution could not be agreed upon. The inability of the committee to provide a Canadian standard on the issue shows how complicated this problem is. Let's look at some of the issues.

THE DEFINITION

The definition of abandoned in the CSA document is quite simple:

"Abandoned – with reference to underground infrastructure, taken out of service permanently but left in place."

As for mapping, the CSA document says, "The owner shall maintain an accurate record of existing, not-in-service, and abandoned underground infrastructure and should consider CSA S250 as a means to do so."

This is where it gets tricky. Both CSA S250 and CSA Z247 may be standards in the books but neither has been referenced in law, so they are both voluntary at this point. Even if you wanted to abide by S250, it would only realistically cover

new installations; yet most abandoned infrastructure already exists. With the advent of Fibre to the Home spreading rapidly throughout Ontario, thousands of kilometres of old co-ax infrastructure is going to be abandoned in place down every street.

THE PLAYERS INVOLVED

Abandoned infrastructure affects everyone but the ground disturber definitely pays the biggest price. The CSA document says when an abandoned infrastructure is encountered, work should stop and the ground disturber should contact the OneCall and any known owners in the vicinity. In Ontario, the one-call system doesn't have an active "dig up emergency" call type to notify utilities that something has been exposed, so the excavator is left to try to sort it out. Following this direction is very costly to the excavator amounting to thousands if not tens of thousands of dollars in delays and lost productivity. For infrastructure owners, when a line is abandoned, they're not allowed by their municipal agreements to remove unused infrastructure from the boulevard. No one wants a stretch of boulevard torn up just to remove an old line, not to mention the risk to other utilities. The best example of this is when utilities move from back to front yard or a new common trench is directed, every utility just cuts over and leaves everything in place. To keep these on the maps and located is expensive and confusing. Some utilities pay their levies based on active plant, so there's no incentive to pay for unused and damaged plant. Not to mention abandoned plant is not usually locatable after disconnection.

Locate sets need this connection to provide continuity. Since the plant cannot be removed from the boulevard under agreement, ownership falls to the city, and they don't want to deal with it either.

WHAT'S NEXT

There is no shortage of best practices and standards outlining the safest thing to do, but the reality is no one is going to take on this massive a task unless they're forced too. In 2022, the CSA Z247 Technical Committee will reform, and this problem will be back on the agenda to tackle once again. Now that the body of the standard exists, task teams can tackle the individual problems that the committee could not overcome in 2015. Adopting the standard now will give utilities time to come up with a viable solution going forward.

If utilities applied proper subsurface utility engineering (SUE) techniques on projects of value, abandoned plant could be found and dealt with prior to excavation. Utilizing SUE has been proven to save up to four times the cost of the investigation in downstream cost such as the delay in excavation when abandoned infrastructure forces a utility to relocate.

WHAT HAPPENS IF WE DO NOTHING?

If we continue to ignore this issue, then the problem will only get worse. Every day upgrades take place and infrastructure is abandoned in place. The boulevards are becoming so congested that new installations are placed closer and closer to the edges, making locating and excavation harder. ●

2022-2023 CONFERENCES

NOVEMBER 29 – DECEMBER 1, 2022

RUSA & AMHSA Health, Safety & Utility Conference and Trade Show

Red Deer, AB

Rural Utilities Safety Association and Alberta Municipal Health & Safety Association

www.rusa.ca/conference

DECEMBER 8, 2022

CAPULC General Members Meeting

Edmonton, AB

www.capulc.ca

FEBRUARY 7 – 9, 2023

ORCGA 2023 Damage Prevention Symposium

Windsor, ON

www.orcga.com/events

FEBRUARY 14 – 16, 2023

Global Excavation Safety Conference

Tampa, FL

www.globalexavationsafetyconference.com

MARCH, 2023

Damage Prevention Week

www.excavationsafetyalliance.com/damage-prevention-week

APRIL 4, 2023

EAPUOC Safety Seminar & Trade Show

Sherwood Park, AB

www.eapuoc.com/news/2022-safety-seminar-and-trade-show

APRIL 17 – 21, 2023

2023 CGA Conference & Expo

Orlando, FL

www.cgaconference.com

APRIL 20, 2023

CAPULC AGM & Safety Conference Trade Show

Calgary, AB

www.capulc.ca/page-1765505

MAY 2 – 4, 2023

Petroleum Safety Conference

TBA

www.energysafetycanada.com/News-Events/Petroleum-Conference

MAY 7 – 13, 2023

CCOHS Safety & Health Week

Virtual

www.ccohs.ca/events/safety-and-health-week/
www.safetyandhealthweek.ca/english

MAY 2024

Peace Region Petroleum Show

Grande Prairie, AB

www.grandeprairiechamber.com/pres

JUNE 5 – 6, 2024

Saskatchewan Oil & Gas Show

TBA

www.oilshow.ca

JULY 2024

Canadian Society of Safety Engineering CSSE's Professional Development Conference

Edmonton, AB

www.csse.org/site/events/conference

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