



# Sink Line

AN UPDATE FROM OMR ON YOUR MINE RESCUE PROGRAM

ISSUE #40 WINTER 2019

## Mine rescue VR playground Technology closing gap on training potential

Mine rescue is Ed Wisniewski's virtual reality playground. And the NORCAT's director of technology's VR mine rescue playground is getting bigger, faster.

"The ball that we pushed down the hill five years ago is really rolling," Wisniewski said, noting technological advances released earlier this year moved the virtual playground into a more practical realm with significant potential for mine rescue training.

"In fact, in another two months, it will be even more amazing," he said, though issues remain to be resolved before VR mine rescue training becomes an actual reality. "It's just a matter of time."

Wisniewski said NORCAT had been engaging with clients for more than two decades, attempting to introduce tech-enabled methods of training and development, however momentum only started to build in 2016 after the release of their mine rescue simulation.

"Initially, industry saw virtual reality as gaming technology," he said. "They would respond saying that health and safety is not a game, and we're not interested."

"But just because it's gaming technology . . . doesn't mean we can't use gaming technology to train within health and safety."

The technology provides opportunities to engage learners, and virtual reality allows them to gain and retain knowledge through meaningful experiences.



REALITY - A virtual mine rescuer provides first aid to a virtual casualty.

The pendulum began to swing in 2016, when Science North approached NORCAT to develop a "Mine Rescue Experience" for Dynamic Earth in Sudbury. For Wisniewski, it was mandatory that Ontario Mine Rescue (OMR) be involved to provide guidance and industry reflection.

The Mine Rescue Experience, still in use at

Dynamic Earth, was a hit.

"At that time, the experience we built didn't incorporate a lot of VR technology, but used avatar technology in the style of Call of Duty," explained Wisniewski, referencing the popular video game.

See 'MR EXPERIENCE' Page 4

## Once not enough for newest Diamond



HEATHER WILLIS, captain of the Red Lake Gold Mines team at the 2016 Ontario Mine Rescue Provincial Competition.

Heather Willis is ready to do it again.

The nine-year Red Lake District mine rescue volunteer competed with the all-female Diamonds in the Rough mine rescue team at the National Western Region Mine Rescue Competition in Fernie, B.C., in September.

Now Willis, hoping to compete in her ninth consecutive Ontario Mine Rescue district competition for Red Lake Gold Mines in 2020, also wants to make an appearance with Diamonds in the Rough at the 2020 International Mines Rescue Competition.

"They would like me to go," Willis said, cautiously noting a number of conditions need to be met first, both for Willis and Diamonds in the Rough, before heading to



the Mine Safety and Health Administration Academy in Beaver, West Virginia, for IMRC2020.

See 'WILLIS' Page 2



DIAMOND HARD - #4 Heather Willis centers the 2019 Diamonds in the Rough - Photos courtesy Brandy Bloxom Photography

# Willis welcomed invitation

Continued from Page 1

The door opened last spring when “Kari Lentowicz, the (Diamonds in the Rough) organizer, emailed me, and asked if I would be interested” in joining the team for the B.C. competition, she said.

“I was really interested, and wanted to because it was something totally different to what I’ve done,” Willis said.

Diamonds in the Rough “looked after getting me out there,” said the Ontario mine rescuer. “They planned out the training and everything for the competition.” All Willis had to do was arrange time off from work.

Just before the biennial event, “we got together, and trained for a week in Fernie, and we got to train for a few days at the Teck coal mine in Elk Valley.”

Lentowicz, managing director of Diamonds in the Rough, assembled a six-member team, plus spare and technician. Four were returning members from the IMRC2018 team that went to Russia. Four, including Willis, were new to Diamonds.

“I was the first from Ontario, as well as being the farthest east,” said Willis, designated #4 woman, a utility position.

“That’s always a challenge, getting thrown together, and then immediately . . . we have to make this work, and figure out everybody’s strengths, weaknesses, and personalities on the go,” she said.

“It was a good group. I was a bit nervous. I’m used to working with men even in my day-to-day job,” so working with a team comprised entirely of women was a new experience.

Aside from the challenge most members faced of having to work with new teammates, Willis said the greatest personal challenge was “learning the different procedures, and trying to forget my Ontario habits.

“They don’t always do things like us.”



NOW WHAT? - Heather Willis, left, and #5 Fanny Laporte take a look at what’s next in the Fernie mine rescue competition.

See ‘TRAINING’ Page 3

# Training reflected differences in event

Continued from Page 2

The variations included taking different basket items and not rotating two spaces on the basket. They maintain their front or rear position, merely moving from one side to the other.

“The vice captain checks the bottles, then tells the captain what the lowest bottle was and who it was,” Willis said. “And it’s not every 20 minutes. It’s like every few rotations on the basket.”

Unlike Ontario competitions, which combine several activities into an overall scenario, the Western competition breaks activities into a series of 45-minute time-limited events – first aid, firefighting, obstacle and recovery (underground), smoke, practical skills, and theory. The training reflected that.

“Anybody from the West trains more that way,” Willis said. As well, “they train more for coal mines and soft rock, building line brattices and seals, which we never do.”

Nine teams competed including two from B.C., Saskatchewan, and Manitoba, and one each from Nunavut and the Northwest Territories.

Diamonds’ best showing was second place in first aid, Willis said, and the team finished mid pack overall and in the other events. Mosiac Potash in Esterhazy, Sask., dominated the competition, winning five events, and placing first overall.

Willis appreciates the work Lentowicz and Diamonds have done to open mining and mine rescue to women. She said the advice given to women should be taken to heart.

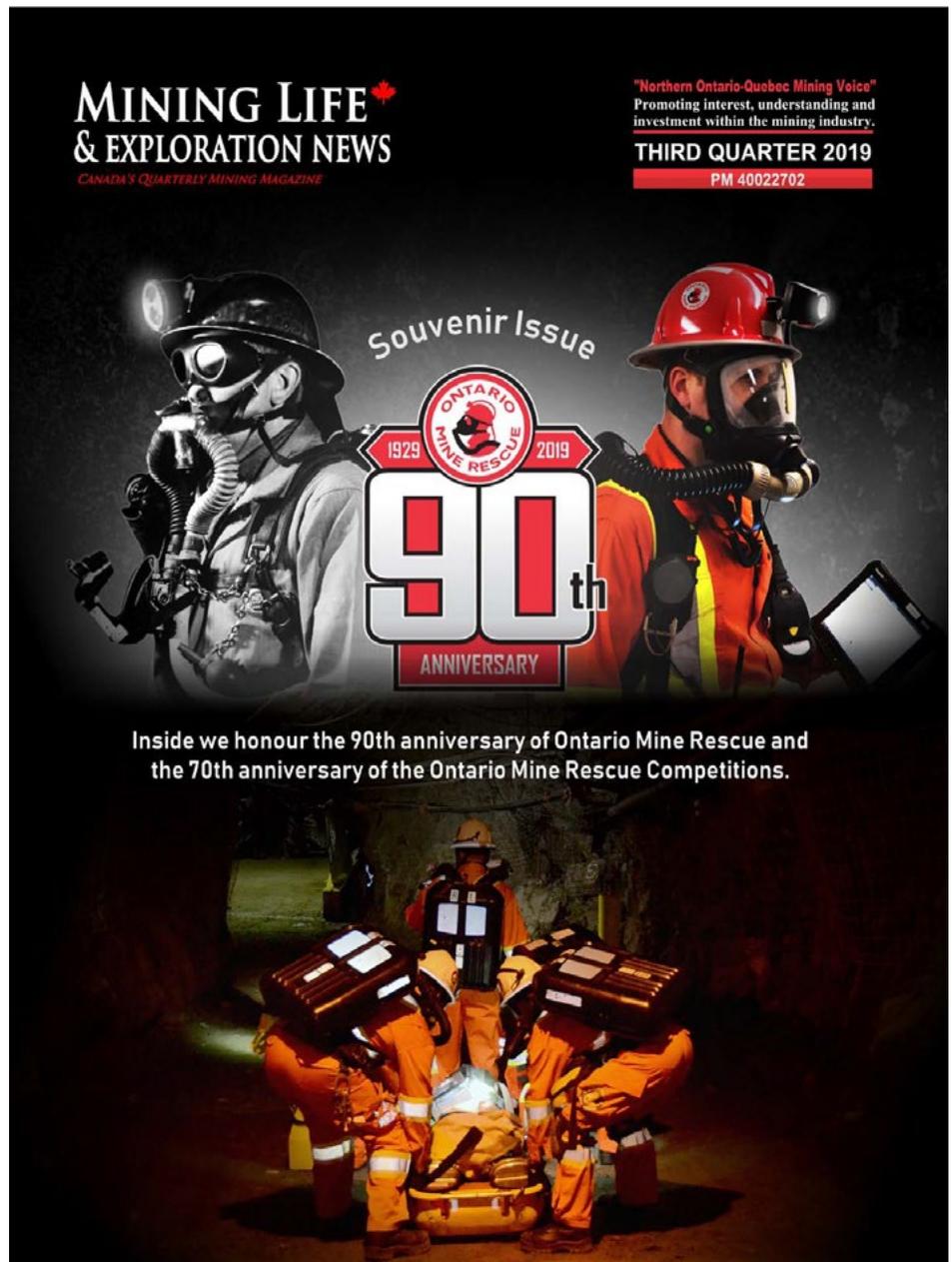
“Just do what you physically can. Don’t play the ‘Oh I can’t do that card.’ Just do what you can,” she said. “Even men are different,” not all men can lift the same weights or do as much others.

Willis is keen to join the Diamonds at IMRC 2020, but organizer Lentowicz’s ambitions for the team include competing in provincial mine rescue competitions, though not necessarily Ontario’s, in 2020 and 2021.

With approximately 40 women among Ontario Mine Rescue’s 850 volunteers, does Willis see an all-female Ontario team in the future?

“It would be cool to see,” she said emphatically, “but I wouldn’t be the one to do that but would be cool to see.”

For more on Diamonds in the Rough, which is currently recruiting, visit their LinkedIn page – [bit.ly/34dAtZH](https://bit.ly/34dAtZH).



Inside we honour the 90th anniversary of Ontario Mine Rescue and the 70th anniversary of the Ontario Mine Rescue Competitions.

**DID YOU GET YOUR COPY?** – Timmins-based Mining Life and Exploration News, a publication by Canadian Trad-Ex, saluted mine rescue volunteers and the 90th anniversary of Ontario Mine Rescue with a special souvenir issue. Most of the almost 100-page publication is devoted to mine rescue. If you didn’t get a print copy of this now hard-to-find issue, view it online and download a PDF version at [bit.ly/2oUSDRb](https://bit.ly/2oUSDRb).



**ALL THE WAY THERE** – Thanks to retired mine rescuer Jack Charbonneau and Jeremy Bondy of K+S Windsor Salt, for filling in the unidentified members of Stanleigh Mine’s 1993 mine rescue team representing Elliot Lake/Algoma District in the provincial competition. Back left: Ron Kelner, Wally Howard, Brian Crotty, Henri Genevesiox/Twardy, and Ray Olmstead. Front Left: Jack Charbonneau, Paul Keller and James McClintock.

# MR Experience led to growth

Continued from Page 1

That meant a large screen monitor and controller rather than a VR headset and arm/body control.

And “we got everyone’s attention because OMR jumped on board.”

The simulation showed what Wisniewski and his small team of designers and developers could do, and the team began to experience interest and demand for further projects. New VR training programs, including circle checks, hazard recognition, and scaling, went into development, while the team continued to build and refine the mine rescue experience.

Their vision for mine rescue, however, was difficult to achieve because the technology required to bring it to life didn’t exist. A powerful, portable and lightweight computer with extended battery life, multiple exterior sensors, and more detailed and extensive image assets were just a few of the elements required.

The NORCAT team “just kept plugging away at it . . . making sure we were staying up to date in whatever the technology was,” Wisniewski said. Notebook and laptop computers became more powerful, smaller, and efficient, and “the stuff that came out in May changed the world for us overnight.”

With the introduction of the Oculus Quest, cameras and forward sensors were mounted in the headset, and eliminated the need for exterior sensors and allowed greater untethered movement.

“I can now just put the goggles on and grab hand controllers.”

In fact, NORCAT managed to fit a notebook computer in a Dräger BG4 to create high fidelity VR visuals without a tethered connection, and is now looking at doing a mine rescue simulation where the participant is in full gear, and wearing a facemask equipped with VR goggles, Wisniewski said.

Ultimately, “it will be an operator (mine rescue officer) designing their scenario on a PC, and the trainees (mine rescue volunteers) solving and training in that VR scenario.” The MRO would pick a scenario, a mine location, the injury suffered by a casualty, the team’s starting point, and more, Wisniewski explained.

“What you would see from an external point of view is five guys all in their spaces . . . doing something. But what they would be seeing is everyone huddled around the casualty in VR. The illusion that they are all beside each other is there.”

The efforts caught the attention of Facebook, the owner of Oculus, which asked NORCAT to take part in their “VR for Good” initiative “to spotlight how non-traditional VR technologies have the ability to make the world a better place,” Wisniewski said.

The video which showcased the collaboration between NORCAT and OMR, was shot at a Sudbury area mine with OMR volunteers. It features the NORCAT team;



WHICH ONE IS THE TIC? – Upcoming enhancements will allow the controllers to become mine rescue devices, such as a thermal imaging camera.

Shawn Rideout, OMR’s chief mine rescue officer; and Alex Gryska, secretary of the International Mines Rescue Body and former OMR director.

The next enhancement within several months, Wisniewski said, will be the addition of real hands into the experience. Instead of hand controllers, users will have the ability to pick up and manipulate objects in VR using their own hands and fingers.

Currently hand controllers are used to do actions in VR, but they will become mine rescue devices, he said, an MX6 gas monitor, a thermal imaging camera, or a Sentinel, hanging from the front of a BG4 for use when needed.

And more is yet to come.

“It’s just a matter of time before we get down to full body recognition,” Wisniewski said, and participants will see facial actions and emotions in VR characters.

Until then, Wisniewski and his team continue to build, expand and experiment with the mine rescue virtual reality, with the ultimate goal of transforming it into a standalone training product for mine rescue.



IT FITS – A notebook computer is fitted into a Dräger BG4 to provide high quality VR visuals to the wearer.

## Video Highlights

To see the original MR Experience:  
[bit.ly/2CAeVdW](https://bit.ly/2CAeVdW)

To see VR is Good Ontario Mine Rescue:  
[bit.ly/32DdXYQ](https://bit.ly/32DdXYQ)



## IMRC2020 accepting team, judge applications

Time to start planning.

The 12th International Mines Rescue Competition, scheduled for Sept. 12 to 18, next year is now taking applications from would-be judges and competitors.

The event, to be held in the United States for the fifth time, will be hosted by the Department of Labor's Mine Safety and Health Administration (MSHA) and the Holmes Mine Rescue Association at the National Mine Health and Safety Academy in Beaver, West Virginia.

The academy is responsible for training mine safety and health inspectors, and MSHA's technical support personnel. The academy includes an above ground mine simulation laboratory with simulated coal and metal/non-metal mines. The laboratory is used to provide hands-on experience in mine rescue, recovery, firefighting, and mine emergency operations management.

Up to 30 teams will compete in the event, a maximum 25 international teams and five American teams, including a team representing MSHA, and four teams – two coal, two metal/non-metal – chosen from the winners of the U.S. national mine rescue competition.

Competition events will include a mine rescue field event, firefighting, high angle rope rescue, first aid, bench, oxygen breathing apparatus, gas detection, and incident command.

Additional information, including applications for would-be competition teams and judges, are posted at **IMRC2020.com**.

Tahoe Canada Timmins West and Bell Creek Mines and the all-female Diamonds in the Rough represented Canada at IMRC2018 in Ekaterinburg, Russia, where 24 teams representing 11 countries competed.

OMR hosted IMRC2016 in Sudbury, which was attended by 27 teams representing 13 nations.

## MEETING THE WORLD

Ontario Mine Rescue Officer Shawn Shail, top photo, scribes during a workshop at the ninth biennial conference of the International Mines Rescue Body (IMRB) this September in Bogota, Colombia.

More than 500 delegates from 24 nations attended, making it the largest IMRB conference ever. Shail, Ted Hanley, vice president of Ontario Mine Rescue, and Shawn Rideout, Chief Mine Rescue Officer, represented OMR at the event.

During the IMRB executive meeting, delegates agreed to absorb the International Mines Rescue Competition (IMRC) as a part of the organization to ensure continuity in rules and standards.

Delegates visited underground coal mines, attended workshops, and heard



presentations on topics such as portable refuge stations, health risks for first responders, women in mine rescue, and effective emergency response.

Presentations are available for download at **minerescue.org/imrb-colombia**

The next IMRB conference will be held in 2021 in Australia, which last hosted a conference in 2006.



HELLO, MINE RESCUE! ANYBODY DOWN THERE? – Ontario Mine Rescue Officers Duane Crowell, left, and Matt VandenHeuvel check for casualties after using jackhammers to widen a hole. In November, all MROs attended the Federal Emergency Management Agency's Structural Collapse Technician program at the Guardian Centers in Perry, Georgia. The program encompasses a focus on tunnel collapse that parallels a mine environment, and included theory and practical exercises. For more pictures visit **facebook.com/OntarioMineRescue**.



**SAY THAT'S** - Thanks to Ron Anderson and Bill Barty for identifying their teammates on the American Barrick - Holt McDermott mine rescue team at the 1994 provincial competition in Kirkland Lake. Back left: Peter Fiset, Gaetan Lessard, Bill Barty, Rick Morrison. Front left: Captain Mike Johnson, Briefing Officer Rob Anderson, and Craig Allen. Barty said the team finished second overall.



**WHO IS THAT?** - We know who they are, the mine rescue team from Teck Corona's David Bell Mine which represented Thunder Bay District at the 1996 Provincial Mine Rescue Competition in Sudbury. But we'd like to know who is who. If you can identify members of the team, please email [kensitter@workplacesafetynorth.ca](mailto:kensitter@workplacesafetynorth.ca).



## ABOUT THE ONTARIO MINE RESCUE NEWSLETTER

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