ONTARIO MINE RESCUE
PREPARED SINCE 1929

# Link Line

an update from WSN on YOUR Mine Rescue program

Issue #26 Spring 2015

# Fire Burned into Mine Rescue History

## 50 years ago fire broke out in McIntyre Mine

Started by a damaged electrical cable 50 years ago, the McIntyre Mine fire burned its way into Ontario Mine Rescue history.

It still impacts mine rescue today, though most mine rescuers were not even born when the blaze broke out 6,500 feet below the surface of Timmins.

"There are a number of points deserving of serious thought," wrote McIntyre mine manager P.B. McCrodan, in a report following the fire which started in the early hours of Feb. 8, 1965. "In fact there are so many that it is difficult to keep them in perspective."

McCrodan said, "the greatest obstacles were distance and heat," which made reconnaissance and fighting the fire "a time-consuming operation."

The first reconnaissance could not locate the fire, while a second and third reconnaissance extinguished one blaze but could not establish its scope as teams were driven back by heat and smoke in the mine's expanse.

*YOUR TASK IS . . . – A mine rescue team listens to a briefing before being deployed to fight the McIntyre Mine fire, which occurred 50 years ago this year.*

By the morning of Feb. 10 with the Porcupine Camp mine rescue teams nearing exhaustion and ventilation to the mine all but shut down a day earlier, McCrodan sought additional equipment and mine rescue teams from other Ontario Mine Rescue Stations. The first teams arrived that evening.

The Ontario Mine Rescue Handbook credits the fire, which involved about 140 mine rescuers from a dozen mines in Timmins, Kirkland Lake and Sudbury, for confirming the wisdom of province-wide standards and underlining the need to replace the two-hour McCaa breathing apparatus.

But the fire did more than that.

See "FACEMASKS" Page 4

# Mark IMRC 2016 – Canada on calendar

Mine rescuers across Ontario, Canada and the world are marking the week of August 19-26, 2016 on their calendars.

IMRC 2016 – Canada, the 10th International Mines Rescue Competition, hosted by Workplace Safety North's Ontario Mine Rescue and sponsored by major companies in the Canadian mining industry, will be held in Sudbury that week.

International competitions are a unique opportunity for mine rescue team members from different nations to meet their peers, improve mine rescue skills, exchange technical and organizational knowledge, and share practical experiences.

IMRC
CANADA 2016

Plans are well underway to welcome 30 mine rescue teams from as many as 20 countries, the largest IMRC to date. Hotel rooms for more than 500 people have been set aside; venues booked for opening and closing ceremonies; and a website – **IMRC2016.ca** launched.

The website will be the main source of information on the competition, including rules, team and judge applications, travel to Canada, sponsorship opportunities, event activities, a newsletter and more.

See "MORE" Page 8

## We need you!

**If you have comments about the newsletter, or suggestions for future articles, please contact Ken Sitter at WSN, (705) 474-7233 ext. 234, or kensitter@workplacesafetynorth.ca**

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# Mining review addresses emergency response

Three recommendations on emergency preparedness and mine rescue were among 18 recommendations in the Mining Health, Safety and Prevention Review released during Workplace Safety North's annual Mining Health and Safety Conference in April.

"We can see the themes that we had addressed, are addressed in those three recommendations," said Alex Gryska, Ontario Mine Rescue general manager and chair of the working group on emergency preparedness and mine rescue that reported to the mining review.

Gryska and fellow working group member Dave Stewart, joint health and safety committee co-ordinator for UNIFOR at Glencore Sudbury Integrated Nickel Operations, discussed the recommendations and their report during the conference. The third member of the working group, Jamie Mortson, health and safety manager for Lake Shore Gold Corp., was unable to attend.

Last year the group did extensive research including consultations with the public and interest groups, and reviewed written submissions, inquest findings and legislation, Gryska said. After data collection, the group identified and analyzed gaps, and compared Ontario to other mine rescue jurisdictions.

"We did a lot of outreach with other jurisdictions. We wanted to make sure that we came up with something that was going to make a significant improvement to mine rescue here in Ontario," Gryska said.

"We came up with 13 recommendations that we submitted" to the mining review, said Stewart.

Issues addressed by the group included exploration sites and new mines, managing risk, critical post incident stress, regulatory requirements, fitness of volunteers, and new technology.

The working group recommendations were refined and reduced to three by the mining review panel, though the review devoted five pages of its 66-page length to Emergency Response and Mine Rescue.

See "RECOMMENDATIONS" Page 6


## Thanks Gilbert and Bruce

*Gilbert Wahl, above, and Bruce Hall, below, accept plaques recognizing their contributions to Ontario Mine Rescue Technical Advisory Committee (TAC) from Alex Gryska, OMR general manager. Both have stepped down after a combined 27 years of service to the TAC.*

*Wahl, a mine rescue volunteer for more than 40 years, served on the committee for 12 years representing mine operators in the Thunder Bay/Algoma District. Wahl also said goodbye to his job as director of safety and security at Wesdome Gold Mines Ltd.'s Eagle River Mine, but will not say goodbye to OMR. He plans to continue serving as a judge in competitions.*

*Hall, who represented mine rescue officers (MRO) on the TAC, was an original member of the committee when it was created 15 years ago. Sudbury District MRO since 1989, Hall became involved in mine rescue as a volunteer at Macassa Mine in Kirkland Lake. He will retire from OMR later this year.*

# Mine rescue competitors take note

## Early analysis in team dynamics study assembles team profiles

Mine rescue competitors take note: captains of high-performing mine rescue teams in critical situations tend to communicate in a "clear, positive, and assertive" tone, while team members "exhibit more constrained role-specific behaviours and co-ordinated behaviour."

By contrast, captains of lower-performing teams tend "to be more tentative," and "have intra-team dynamics that involve high-levels of participation by all team members in all team functions."

Those are among the early results of a three-year research project by Dr. Mary Waller, a professor of organization studies at York University, into team communications in dynamic, non-routine situations involving provincial mine rescue competitions.

Dr. Waller with the support of Ontario Mine Rescue (OMR) has been collecting and analyzing data gathered by recording mine rescue teams communications during the 2012, 2013, and 2014 provincial competitions. The research was supported by a grant from the Social Sciences and Humanities Council of Canada.

*SPEAK UP – A mine rescuer watches as Dr. Mary Waller, right, places a USB key-sized micro-recorder on his hard hat prior to competing. The recordings are being analyzed to determine the communication patterns of top performing teams.*

During the competitions, each team member, including the briefing officer, was equipped with a USB key-sized micro-recorder, which recorded the entire event. The recordings were reviewed to identify and code the comments – information, command, question, or affirmation, of each participant. Other data was gathered from the scenario, team performance ratings, test scores, and scribe notes.

To date two studies have been undertaken with the data – one to identify differences in behaviours between high-performing and average-performing teams, and a second analyzing the emotional tone of statements made by the captains.

Dr. Waller, in a report to OMR, cautions that the analysis so far is insufficient to say that the behavioural differences "necessarily cause differences in performance levels," but the analysis is enough that "by taking the significant differences together, we can begin to assemble" profiles of lower- and higher-performing teams.

"One recommendation for lower-performing team members would be to focus more on role-specific behaviours and to engage in more shared mental model building – making sure that everyone is 'playing off the same page' as a team."

A second recommendation, to consider training captains in the role of participative decision-making, comes with the caution that simply training them to be directive could be counter-productive if it shuts down input from team members.

"Clear directive behaviour, in other words, is obviously not a dictatorship."

Dr. Waller said additional studies are planned. For example, the next phase will focus more on the timing and patterns of behaviours. These results "may help identify specific recommendations for teams regarding shaping the nature of their interactions at specific times."

Previously Dr. Waller researched communications and team dynamics in aviation flight crews, nuclear power plant control room crews, military crews, trauma teams, port and harbor operations, and terrorism response.

The mine rescue research is unique because teams have a more complex routine to go through under time constraints and in a simulated harsh environment, she said. "They not only need to perform an activity, they also need to get together to problem-solve."

The research project has been well-received in the academic world and is drawing significant interest because what is learned from this project will be applicable to situations in other industries, Dr. Waller said.

# Facemasks, foam prove themselves valuable

Continued from page 1

In a week of firefighting after the arrival of assistance, the fire also demonstrated the value of high expansion foam in extinguishing hot spots in difficult to reach locations, as well as the benefit of full facemasks for mine rescuers.

Bill Gagnon, a mine rescuer from then Inco's Creighton Mine who volunteered to help, recalled a foam generator was flown from the United States in the first days of the fire.

"Once that foam generator came, it didn't take long, because that was a monster of a rig. It was electric, and I can remember they'd bring it on one level and set it up. . . . and the foam would go from level to level very quickly. You'd see it coming out of those diamond drill holes on the next level."

The two high expansion foam generators used on the fire were of "considerable assistance," said McCrodan, who recommended some alterations in its use, as well as training for all mine rescue teams.

### SEALED OUT SMOKE, CO

Initially, though mine rescuers from the McIntyre had full facemasks, most other responders used the McCaa with a mouthpiece and noseclip. But as time went on, Gagnon said, more rescuers got masks that better protected their faces and sealed out the smoke and carbon monoxide.

"We got directly to the mine," said Gagnon, "and Charlie Hughes, he had a gas detector. He stood at the cage door, stood on the door, shoved it in . . . the detector turned black. He said, 'this is what we've got right from surface right down'."

The need for an underground fresh air base (FAB), or a refuge station used as a FAB, "was quite apparent after the fire got underway and the mine filled with carbon monoxide," McCrodan said. It allowed the teams to "approach the fire without wasting so much time in travel."

Once the advanced FAB was established the evening of Feb. 12, he said, "crews travelled to and from the FAB and surface using Type N masks."

See "LACK" Page 5


*MEANWHILE ON SURFACE – Former Senior Mine Rescue Officer Ron Eveson, far left, and mine rescue officers from across Ontario answered the call of the McIntyre Mine fire in February 1965.*

# Following fire procedure limited death toll to one

The McIntyre Mine fire only claimed the life of one worker, though former Senior Mine Rescue Officer Ron Eveson believed the death toll could have been greater but for the attentive Hollinger Mine superintendent.

George Weber "took fire procedures seriously," Eveson recalled. So when news of the fire crossed his desk, since "the procedure called for checking the breakthrough into the McIntyre . . . George sent some men from the ventilation department to examine the area."

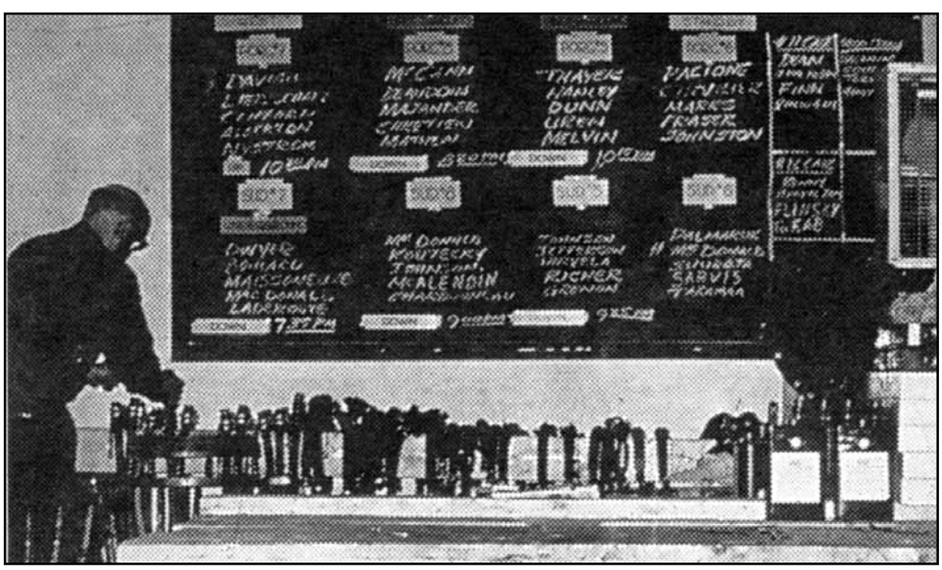
Carbon monoxide, which overcame and killed a skip tender working more than two kilometres from the fire, threatened the three-man team sent to check the breakthrough between the mines. As they approached the breakthrough, one passed out and had to be helped to the shaft by his companions, Eveson said.

"It was obvious that smoke and carbon monoxide were seeping into their mine from the McIntyre fire. They evacuated the mine," but not before a tragedy of immense proportions loomed.

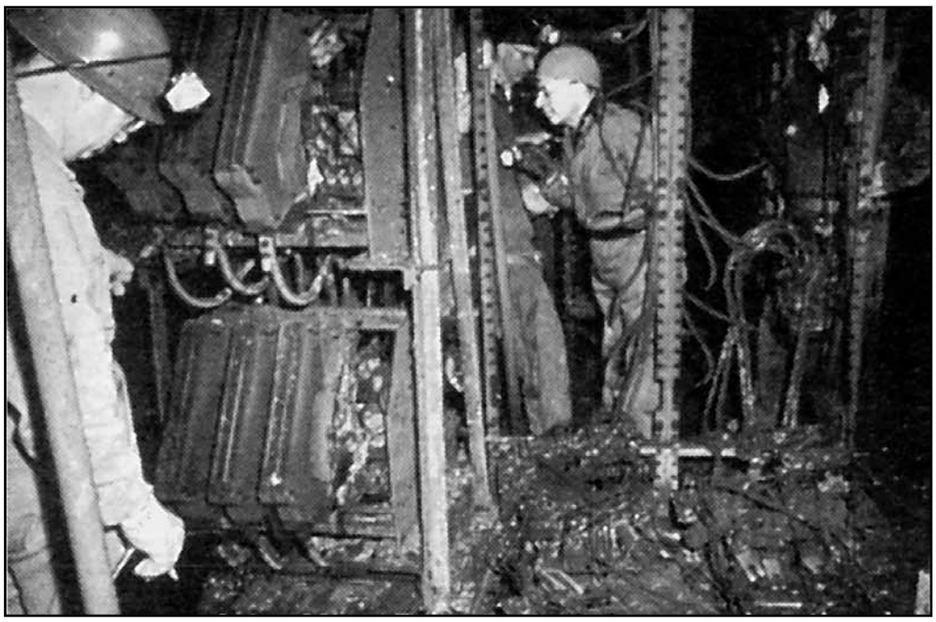
The Hollinger first aid man "told me later they were bringing gassed miners into his first aid room so fast he couldn't look after them so he had them sit around the room. All he could do, he said, was open an oxygen bottle and swing the tube around the room."

"Just imagine the potential for a real disaster if George Weber hadn't followed the mine's fire procedure," Eveson said.

Building barricades in the Hollinger Mine to seal off ventilation from the McIntyre became one of the priorities in the early fight against the fire.



*WHO'S UP? – A chalkboard roster lists some of the teams and almost 140 mine rescuers called out from a dozen Ontario mines to respond to the McIntyre Mine fire.*



*WHAT A MESS – The fire burned a path of destruction along almost 1,200 feet of shaft and 1,800 feet of drift, leaving a mess for workers to clean.*

# Lack of oxygen, close-call forced team to turn back

**Continued from page 4**

Though only one miner died – Simond Floria, 60, a skip tender two kilometres away from the fire – of carbon monoxide poisoning, other deaths were narrowly averted at both Hollinger and McIntyre mines.

The morning the fire started the Hollinger first aid room was filled with miners feeling the effects of CO poisoning. Several days later at least one McIntyre mine rescuer had a close call.

Gagnon's Inco team was accompanied by a McIntyre guide on its first assignment.

"We got down the first shaft and went almost a mile to the second shaft, then went down that one to the bottom when we ran into a problem. Our guide's McCaa breathing apparatus was out of oxygen and we were in contaminated air with two shafts and a long walk between us and surface," he said.

The team had not reached the fire yet and Gagnon's own oxygen was running low.

"We got a self-rescuer on him but I figured he was sucking air out the side because it wasn't giving him enough. I figured we were going to lose him.

"The poor guy passed out before we got there (back to surface), but as soon as we were up, we got some oxygen into him and he was OK. A couple of days later he was back with us working as hard as ever," Gagnon said.

"From then on we carried a Scott air pack with us to make sure that, in case, it could have happened to any one of us. We wanted to be able to get back to surface."

The teams used colorimetric gas detectors to measure the CO level.

"We took readings all the time . . . and in some places the CO would go right off the scale," he said.

McCrodan, in his report, made a point of recommending carbon monoxide detectors – "very compact units about the size of a carton of cigarettes" – be placed at key locations in mines, particularly in return airways. Another innovation he suggested was "inflatable brattices" that "might be advantageous for quick stopping in airways."

## SEALED OFF DRIFTS

Working 12-hour shifts of which four hours was spent under oxygen, the mine rescue teams isolated the fire by sealing off drifts and raises on the five levels of the mine above the 6,575 level with brattices and barricades, and then filled the sealed areas with foam. Some hot spots were smother with hydraulic fill.

By Feb. 15, seven days after it began, McCrodan reported the fire contained and re-ventilation began above the 5300 level. A day later, the fire was completely sealed off, and the mine rescuers from Falconbridge and Inco worked their final shifts.

From the start of the fire to the end of Feb. 17, mine rescuers working around the clock put in almost 18,000 hours, including 2,116 hours under oxygen. They spent more than 140 hours using foam generators and more than 100 cans of foam, and built 22 barricades.

The damage was extensive along the main route of the fire – 1,190 feet of shaft and 1,755 feet of workings. Aluminum pipe melted. Copper wire oxidized. Timber consumed without leaving a trace of charcoal or ash.

McCrodan had praise for the work of the mine rescuers "who worked in such close harmony and who deserve the credit for extinguishing a tough fire."

We at McIntyre, gratefully acknowledge the assistance of the following mine rescue members, and staff, who took part in the fire-fighting operation. The names are listed under the name of their respective mine.

**AUNOR MINE**

J. Alberton
M. Chretien
R. Fraser
G. Marks
I. Chevrier
L. Clifford
R. Lierschaft
M. Nystrom

**DOME MINE**

F. Little
H. Baillie
J. Harvey
J. Lacroix
J. Lepine
B. Franceschini
R. Levesque
J. Munroe
R. Hanley
E. Graham
L. Hamilton
R. Miller
N. Fillion
R. Malley
L. Bouchard
F. Melvin
L. Burgess
J. Beaudoin
W. Uren

**HALLNOR MINE**

E. Baxuik
B. Dunn
C. Frost
E. Lamarche
M. Walker
N. Chyphha
E. Fischhofer
G. Imhoff
G. Larouche

**PAMOUR MINE**

F. Kimberley
H. Hogan

**HOLLINGER MINE**

W. C. Millar
J. Adams
G. Neamtu
M. McAlendin
O. Bazinet
K. Hannah
V. C. Beckett
A. Blanchette
G. St. Pierre
N. L. Canning
R. D. Snyder
R. Donovan
D. Glaister
W. E. Simmons
C. Namtu
D. Eady
B. Mondoux
D. Davis
J. Young
R. C. Morrison
V. Bernotas
W. Yuskow
M. McDonald
O. Lapalme
M. Skwarok
R. Belair
E. Ellefson

**McINTYRE MINE**

J. Pacione
H. Cox
R. Clement
W. Flinsky
J. Thayer
L. Seguin
J. McCann
A. Majander
C. Fasciano
J. Sheldon
L. Lafleur
B. McBain
D. Pope
E. Moran
G. Cantin
D. Daly
J. Vaillancourt
R. Seguin
J. Matthew
J. Daviau
E. Harting
S. Harman
R. Munro
J. Johnston
J. McCrae
C. McIntosh
A. A. Adamson

**FALCONBRIDGE MINE**

J. MacDonald
L. McAlinden
W. Sarvas
J. Dwyer
R. Jones
S. Koutecky
R. Laderoute
W. Palmaruk
L. Suuroja
H. MacDonald
R. Maissoneuve
G. Boulard
H. MacDougall
A. Charbonneau
C. Johnson
H. MacGillvary
J. Takamaa

**INCO—FROOD**

R. Armstrong
H. Grenon
M. Jefferson
C. Lahti
R. Ouimet
R. Anderson
L. Hirvela
E. Johnston
G. Orbeck
L. Richer

**INCO-CREIGHTON**

W. Blackwell
W. Duncan
A. Patterson
R. Cormier
W. Gagnon

**INCO-LEVACK**

H. Gillis
K. Miron
E. Poirier
A. Last
F. Mooney

**INCO—GARSON**

A. Lepage
B. Pilatske
K. Stone
J. Pettigrew
A. Schillemore

**INCO—MURRAY**

W. Anderson
R. Jollat

## Welcome to the Team

*Baby Isabelle, wearing an Ontario Mine Rescue sleeper with appropriate footwear, poses with her parents, Lynne and Alex Thompson, following the Kirkland Lake District Competition. Lynne, captain of last year's St. Andrews Goldfields Ltd. mine rescue team, married Alex, No. 4 Man, following the provincial competition, creating the first Ontario Mine Rescue family. Isabelle joined the team May 1 in Timmins and District Hospital.*

## Our Hero Debuts

*Big Nick, a mine rescue officer and superhero, will debut at Graphic Con, June 6 at Sudbury's Science North. The creation of Martin Deschatelets and Kevin Montpellier of Expired Comics, Big Nick has nickel bonded to his DNA due to a mining incident. He is bulletproof, has super strength and can manipulate metal.*

# Recommendations focus on risk, rescuers, responsibilities

Continued from page 2

**3.1 – The Ministry of Labour to require mining companies to conduct risk assessments to establish Emergency Response Plans for exploration sites, new mines, surface mines and mining plants.**

"That one is important, the risk assessment." Gryska said. "We said that if people are doing proper risk assessments, you are going to take care of a lot of issues."

Ontario Mine Rescue is developing a risk assessment tool, he said, "and it is weaving all those things in . . . emergency response plans for exploration sites, new mines, surface mines and mining plants."

**3.2 – Workplace Safety North to revise the Mine Rescue Handbook to include guidelines for fitness of crew members, critical incident stress management and acclimatization of emergency responders.**

During their research, the group noted that other mine rescue services have fitness and acclimatization standards, and felt that "we need to think about it, especially with the changing environment (deeper, expansive mines) we have," Gryska said.

"We're not exactly sure what we'll be looking at, however it will be integrated into the handbook," he said.

"The onus is going to be on Workplace Safety North to ensure that those elements are built into the handbook appropriately."

**3.3 – The Ministry of Labour to work with stakeholders to develop proposed recommendations regarding the responsibilities of mine rescue crew members and mine owners/employers, with respect to mine rescue operations.**

"That particular item is to address the issue of the lack of the handbook reference or code of practice," in the Mining Regulations, Gryska said.


The group noted that a recent amendment to the Mining Regulations removed a reference to the Ontario Mine Rescue Handbook, and by doing so removed the legislated requirement for mines to have mine rescue services, Gryska said.

No mine operator is taking advantage of the loophole, but the working group recommended restoring the legislated requirement, he said. The ministry has indicated that referencing the handbook in the legislation creates issues, but "there's going to be further discussion," on how to restore the legislated requirement, Gryska said.

The working group was one of six groups to report to the review led by George Gritziotis, Ontario's chief prevention officer. Their reports were the foundation of the Mining Health, Safety and Prevention Review.

The complete review is available at **www.labour.gov.on.ca/english/hs/miningreview.php**.

# New certificate on the wall

With more than 25 years of service to Ontario Mine Rescue and retirement looming, Bruce Hall has a new certificate to hang on his office wall before he leaves.

The Sudbury District Ontario Mine Rescue Officer earned his Certificate in Occupational Health and Safety from Cambrian College this spring following five years of part-time study.

"It was very challenging after many years of not being in school, to start studying chemistry," said Hall, one of several MROs working on the program.

"To be a good teacher, you have to be a good learner," said Hall, explaining his motivation to complete the program which includes courses on chemical and physical hazards, toxicology, workplace legislation, risk analysis, accident prevention and more.

The MRO had earlier earned a Certificate in Teacher of Adults from Cambrian. He and other mine rescue officers voluntarily take such programs, he said, because they help them pass on knowledge to their mine rescue volunteers.

# Student MR team grabs second place

## With a little help from OMR friends

*WHAT WOULD OMR DO? – Student mine rescuers from the University of British Columbia confer during the underground scenario at an intercollegiate mine rescue competition in Colorado. The team placed first in the scenario and finished second overall in the competition.*

With a little help from Ontario Mine Rescue, a student mine rescue team from the University of British Columbia (UBC) placed first in the underground event and in incident command to finish second overall at the 2015 Intercollegiate Mine Emergency Response Development (MERD) exercise at the Colorado School of Mines.

The team, from the UBC department of mining also placed second in first aid and third in the technician events at the third biennial intercollegiate competition at the Colorado school's experimental mine in Idaho Springs, Colorado.

The student-run team travelled from British Columbia to Ontario to train for five days at the Sudbury Mine Rescue Station prior to the competition, and was coached by Timmins District Mine Rescue Officer Danny Taillefer. While in Sudbury they also received training and scenario-based instruction from members of the Vale East Mines 2014 Ontario Mine Rescue Provincial championship team, Lorne Plouffe and Perry Simon.

Though all team members had been certified in B.C. mine rescue training, captain Kieran Swanton said they wanted to further their training and range of experience with Ontario Mine Rescue.

Swanton, a fifth-year mining engineering student, had previous work experience with Glencore-Kidd Operations in Timmins, a four- month internship in 2013 and an eight-month internship in 2014, when he trained with the Kidd Operations mine rescue competition team.

"It was a really good experience. I got to see how to do things in Ontario," said Swanton, who met Taillefer and current transitional OMR General Manager Ted Hanley during his time at Kidd Operations.

"I asked Danny if he'd be interested in coming down as a mentor and coach."

The students manage and run the team themselves, recruiting their coach, arranging their training, and covering competition and training costs, including the Sudbury training, through sponsorships from mine operators and mining-related industries.

UBC was the only Canadian university in the competition, facing teams from five U.S. universities, including the host Colorado School of Mines. The UBC mine rescue team placed first overall at the inaugural competition in 2011, and third in the second competition in 2013.

"I see how crucial mine rescue is and how seriously people take the responsibility," said Swanton of his experience in mine rescue and with OMR. "I think the biggest thing is how mine rescue promotes safety."


## Hello! Our Name is . . .

*Mine Rescue Officer John Hagan braved the crowds at the New Sudbury Centre recently to introduce Ontario Mine Rescue to the broader non-mining community as part of the Modern Mining Technology Sudbury (MMTS) Showcase. The mall event featured mining and technology-related exhibits from businesses, government agencies, as well as educational and industry partners and sponsors. The showcase also included activities at Dynamic Earth, a photo contest, a tour of Sudbury to see mining's effect on the environment, and more.*


# Handy Household Appliance

*Ontario Labour Minister Kevin Flynn tested an edraulic spreader during a recent visit to the Sudbury Mine Rescue Station where he was briefed on the role of Ontario Mine Rescue. The minister, who has experience in emergency response, was thrilled to operate the recently purchased edraulic equipment.*

# More IMRC dates to note

**Continued from page 1**

Visit **IMRC2016.ca** to stay current on news and information on the competition.

In addition to the event dates, two important website dates to note are:

**– May 29, 2015** – applications for competition teams and potential judges will be posted; and

**– August 21, 2015** – competition rules will be posted.

Organizers are planning several IMRC innovations, including:

– **An underground venue** – at least one event will be held underground;

– **International judging** – qualified individuals from outside Canada are welcome to apply to be IMRC judges; and

– **Viewer-friendly sites** – spectators will see more of the competition activities than at previous events.

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