



2020

Toward a Safe Day Every Day

**Results from the 2019 Canadian
Mineral Exploration, Environment,
Health & Safety Survey**

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Introduction

The Association for Mineral Exploration (AME), Prospectors & Developers Association of Canada (PDAC) and Canadian Diamond Drilling Association (CDDA) are pleased to present the 15th annual Toward a Safe Day Every Day report with findings from the Canadian Mineral Exploration Environment, Health and Safety Survey. The 2019 survey had **67 contributing organizations**, down from the record of 117 in 2018, but the number of hours reported on the survey remained high – at 8.9 million hours.

Although the survey is voluntary, it represents a cross-section of the environment, health and safety performance and practices of companies and government geological surveys active in, and supporting, exploration for metals, diamonds, coal and industrial minerals. We estimate that approximately 60% of exploration expenditures in Canada are captured through the survey.

AME and PDAC, together with the Canadian Diamond Drilling Association (CDDA), encourage all organizations active in mineral exploration to complete the survey. In addition to mineral exploration and mining companies, participation of companies that support exploration is critical to the success of the survey. The survey provides a snapshot of leading indicators related to environment, health and safety as well as a report of incidents throughout the year. It also continues to inspire the development of both AME and PDAC's safety workshops and initiatives.

Starting in 2020, through a partnership with the CDDA, the survey form has evolved to include interactive tools so that companies can compare their results with those of the broader industry. The survey is available at www.explorationsurvey.ca.



HIGHLIGHTS

The 2019 survey covers **8.9 million hours of work** – the equivalent of more than 4,500 full-time employees, down from 9.9 million hours of work in 2018. For the first time, all respondents reported having health and safety programming, and nearly all respondents continue to report having environment programming, as well as environment, health and safety planning and reporting.

The average worker can expect to have a career in mineral exploration without a lost-time injury, and 2019 marks the eighth consecutive year of the mineral exploration industry lost-time injury frequency rate being below the rate for all Canadian industries – reported as 1.68 new claims per 100 covered workers in 2019 by the Association of Workers Compensation Boards of Canada. Our survey results indicate a drop in the lost-time injury frequency rate from 0.61 to 0.49 between 2018 and 2019.

The safety record and resilience of the industry have since been evident as mineral exploration was deemed an essential service during the current COVID-19 pandemic by several Canadian jurisdictions in spring 2020. However, three transportation-related fatalities in recent years – two in an airplane crash in 2019 and one in a helicopter crash in 2020 – have demonstrated the need for continued vigilance and the importance of learning from fatalities when they do rarely, but unfortunately occur.

**Frequency rates expressed throughout this report are expressed as the number of incidents per 200,000 hours, or 100 worker years.*



SAFETY REPORTING

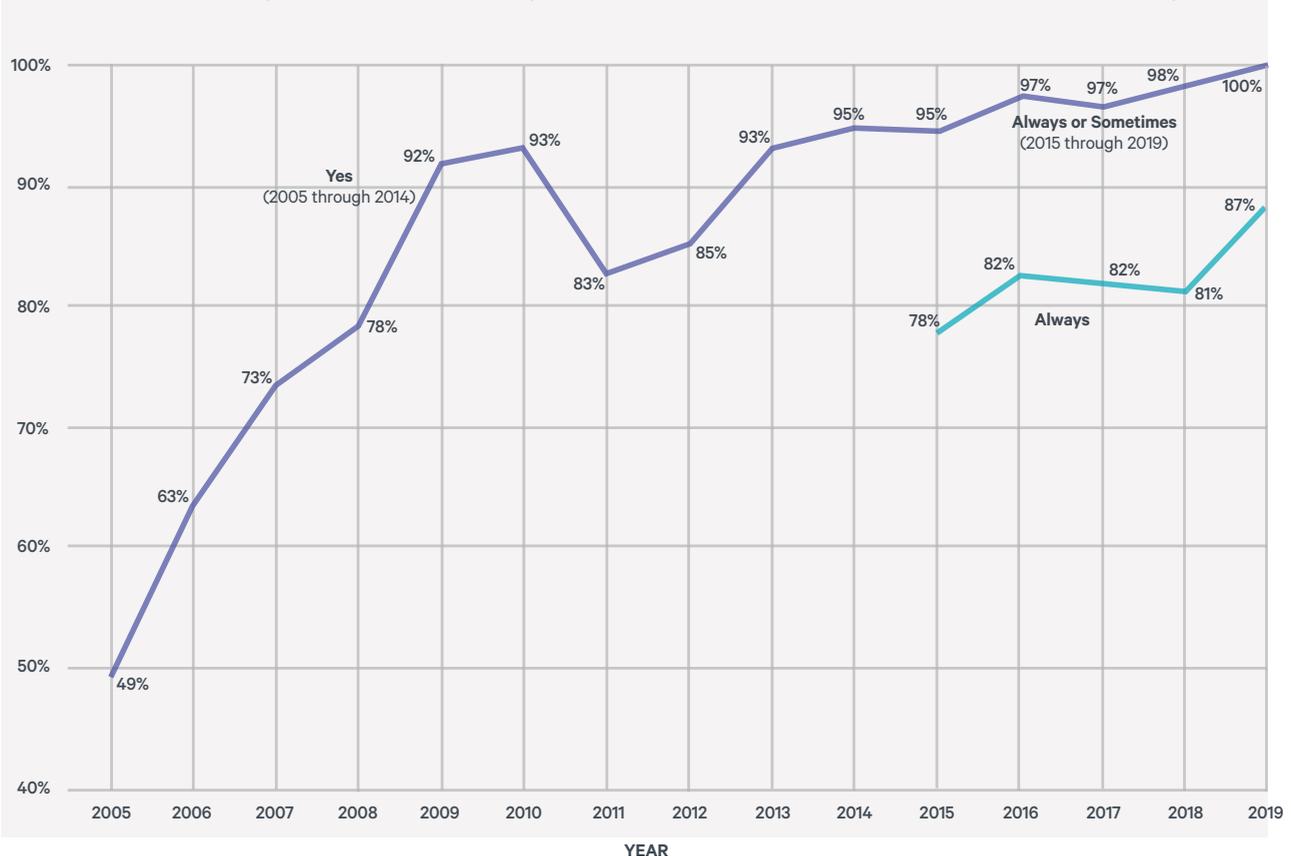
The survey focuses on the various practices in place prior to incidents happening. These leading indicators, or proactive measures, vary according to the organization. For the first time, all companies reported having a health and safety program in the 2019 survey – compared to just under half when the national survey was launched in 2005. The percentage of respondents that reported having a health and safety policy continued to climb – from 96% in 2018 to 99% in 2019.

AME, PDAC and CDDA continue to encourage safety discussions at both the staff and Board level. Although discussions of safety at worker meetings have become more frequent over the years (56% in 2012 to 91% in 2019), these discussions have made slower progress at Board meetings (66% in 2012 to 72% in 2019). Notably, however, all 13 major companies and all 11 drilling companies surveyed reported having safety discussions at every Board meeting, compared to 48% of junior companies and 65% of other organizations (including geological surveys and service providers).

For the just the second time, organizations were asked whether they had a return to work policy. The percentage of organizations reporting that they ‘always’ had a return-to-work program for workplace injuries increased from 62% to 67%, the percentage reporting ‘sometimes’ remained steady at 6%, and 5% ‘never’ did, down from 7%. Majors (85%) and drilling companies (82%) continued to report the highest percentages for organizations that ‘always’ had return-to-work programs.

PERCENTAGE OF COMPANIES WITH HEATH & SAFETY PROGRAM

(Respondents indicating “Yes” from 2005 through 2014; “Yes” or “Always” or “Sometimes” from 2015 through 2019)



ENVIRONMENTAL REPORTING

The percentage of companies reporting having an environmental policy was up for another year – up to 94% in 2019 from 92% in 2018 and 84% in 2017. As discussed in last year’s report, the increase is likely due to increasingly robust due diligence required through legislation, permit requirements and consultation with Indigenous peoples. The percentage of organizations reporting having an environmental management plan also increased to 82% in 2019 from 78% in 2018.

LAGGING INDICATORS

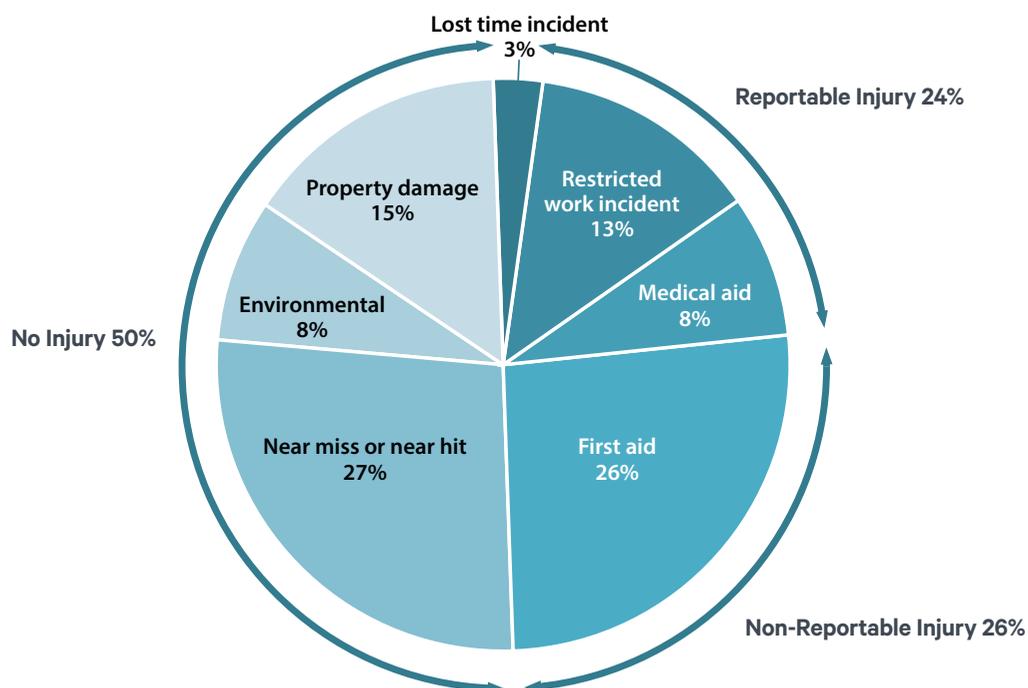
Lagging indicators are measures of actions taken after incidents happened.

The statistics below are based on descriptions of 650 incidents reported by 33 companies.

These include 326 incidents (50.2%) that resulted in injuries. Of these, there were 159 reportable injuries (24.5% of incidents, and 48.8% of injuries) –that resulted in the need for medical attention and/or a restricted work plan. Incidents – whether serious incidents or near misses, provide learning opportunities

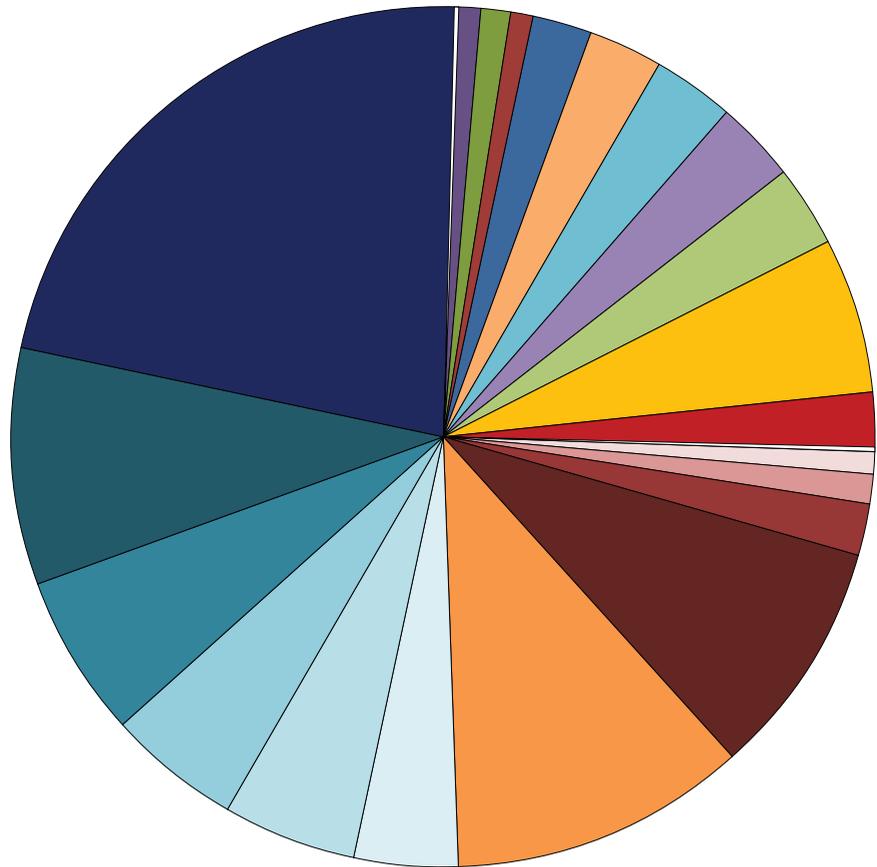
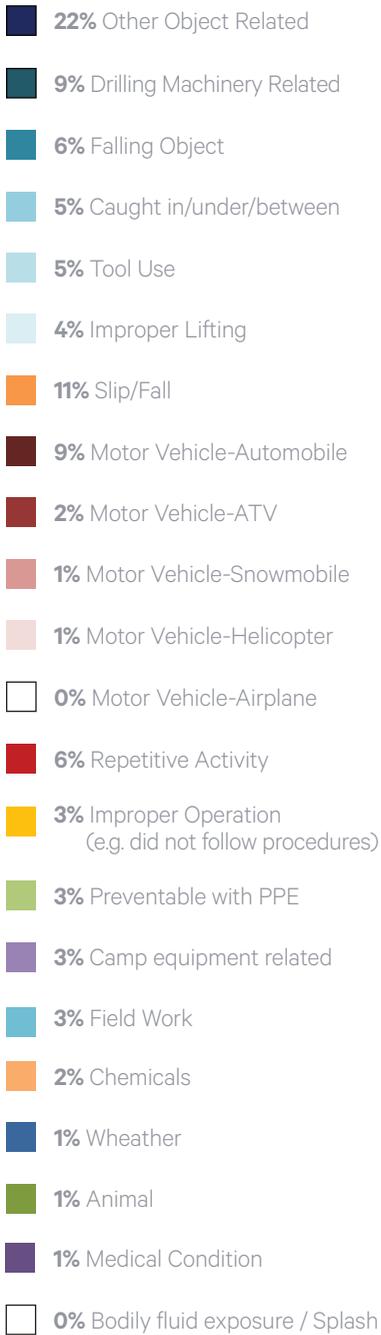
For the eighth year in a row, the lost-time injury rate in the Canadian mineral exploration industry is expected to be below that of all industries in Canada, at 0.49 declining from 0.61 in 2018. The frequency rate of reportable injuries continued to remain high, although declining to 3.56 in 2019 from 4.22 in 2018.

Classification of Incident



INCIDENT TYPE

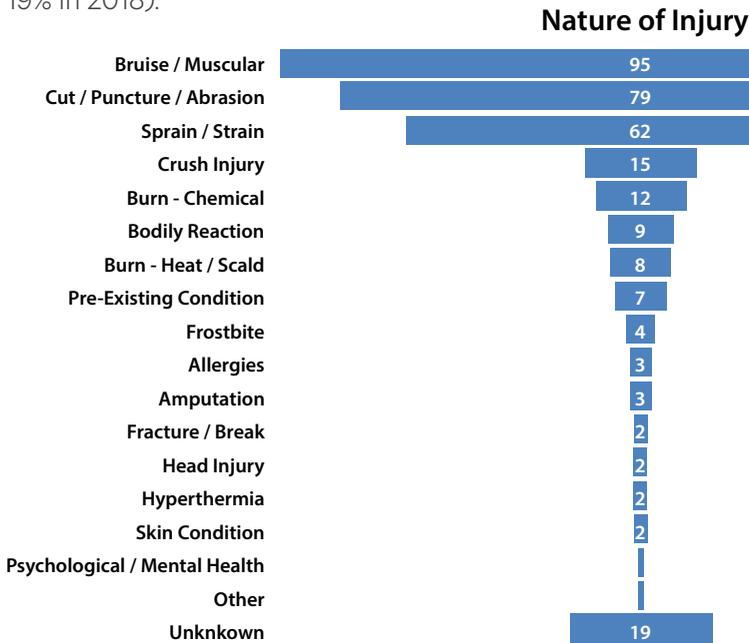
Reporting by incident type broadened in 2019 from previous years, but key themes include to be object, machinery and tool related (accounting 52% of all incidents), transportation (15) and slips and falls (11%).



Key Takeaways:
Inspect all mobile equipment pre-use, perform preventative maintenance, and consider GPS and driver behaviour technologies in your mobile equipment safety program. Make sure that seat belts are used at all times when available.

NATURE OF INJURY

Bruises, cuts and sprains or strains continue to be the leading causes of injury in mineral exploration. Bruises and muscular injuries accounted for 29% of injuries in 2019 (compared to 33% of injuries in 2018); cuts accounted for 24% (compared to 20% in 2018) and sprains and strains for 19% (compared to 19% in 2018).

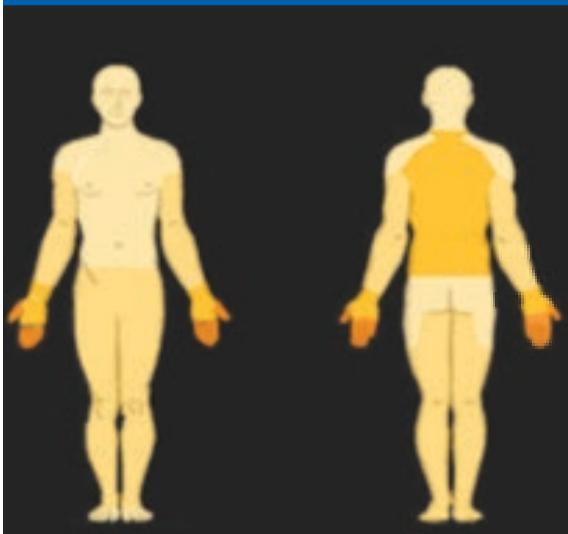


Key Takeaways:

Reduce muscular injuries and sprains by incorporating health and wellness into your safety program. Stretching should be introduced into the pre-shift toolbox meeting. Assess ergonomics for your work activities, ensure proper placement and storage of materials, and encourage micro-stretch breaks for repetitive tasks.

LOCATION OF INJURY

To help us better understand the causes of injuries, we gathered information on location of injury for the first time in 2019. The dominant locations of injury were fingers (20%) and hands/wrists (19%) followed by back (14%)



Head/Neck	4%
Eyes	4%
Face	5%
Shoulder	5%
Chest	2%
Arm	7%
Other	3%
Back	14%
Abdomen	0.6%
Internal	0.3%
Hand/Wrist	19%
Finger(s)	20%
Leg(s)	8%
Foot/Ankle	8%
Toe	0.3%

Ensure workers perform pre-task risk assessments prior to performing tasks. Workers should assess the appropriate level of PPE required for the task, which can include cut resistant gloves. Using the correct tools and ensuring that guards are in place will also reduce the risk of incidents.

In spite of lower reporting overall in 2019 compared to 2018, both the number and percentage of incidents with no injuries increased over 2018. Significantly, no injuries were reported for 324, or close to 50% of the incidents, up from 36% in 2018. We expect that more thorough reporting, and the sharing of near misses among participants has led to fewer incidents with injuries, particularly severe ones.

Key Takeaways:

Encourage the reporting of incidents as learning opportunities – and a way to prevent injuries from happening.

VISUALIZATION: Sadiq Shamji

FATALITIES

AME and PDAC track fatalities and their causes separately from the survey. This information is derived from a combination of reporting through government-led investigations, communications with members, company news releases and news reports.

The first fatalities in mineral exploration in Canada in five years occurred on August 6, 2019, when an airplane crash claimed the lives of the pilot and passenger in Yukon during a flight from a mineral exploration property to the village of Mayo. Following the incident, the Transportation Safety Board of Canada released a summary and full report, and the carrier made several key changes to its procedures.

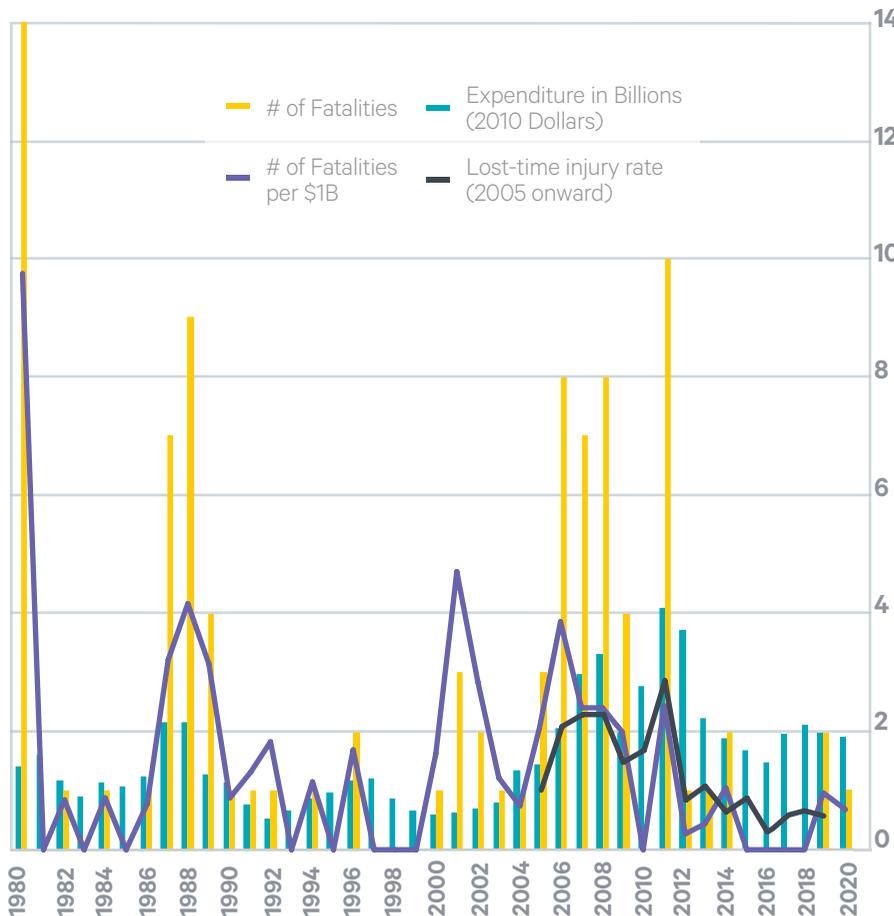
On August 17, 2020, a pilot was killed on a long lining program in northwest B.C. after the pilot set down a load due to incoming bad weather. An investigation is in progress.

Although not directly related to mineral exploration, a worker was fatally injured on January 19, 2020, when he became pinned by a piece of equipment on a sonic drill rig in the petroleum industry.

Altogether, there have been 99 fatalities in mineral exploration in Canada since 1980. However, there have been 13 fatality-free years – including a period of four years without a fatality from 2015 through 2018. Reported causes of fatalities, both primary and secondary, are listed below.

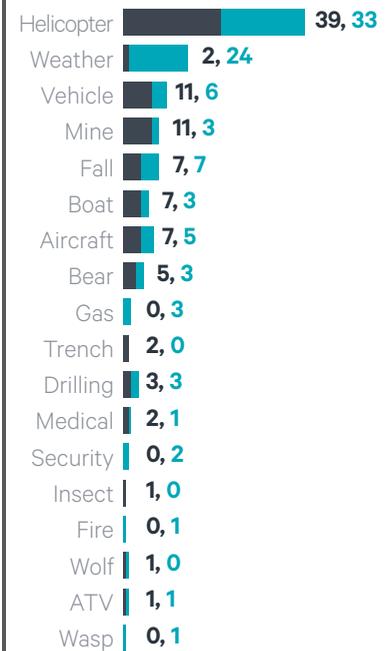
During extended downturns, companies can often lose experienced workers and then ramp up too quickly during subsequent upswings. Historically, increased numbers and rates of fatalities and injuries have generally corresponded with peaks of activity in the industry. This trend appears intact, although to a lesser degree than in previous upswings, which is likely the result of a combination of due diligence, learned lessons from past experience and a growing culture of safety and associated training in the industry.

FATALITIES IN MINERAL EXPLORATION IN CANADA 1980-2020



CAUSE OF FATALITIES 1980-2020

Transportation-related causes have either been primary or secondary causes of 68 or 69% of fatalities since 1980, and have been related to all but one of the 16 fatalities (94%) in the mineral exploration industry since 2010.



WHAT YOU CAN DO

- ▶ Remember that each risk assessment is unique and may in fact be life-saving. What is normally a routine task may need to be reassessed and postponed or cancelled depending on the outcomes of the risk assessment.
- ▶ Ask questions about environment, health and safety. It is your right to be informed.
- ▶ If you are concerned, do not accept the status quo. It is every worker's right to refuse unsafe work.
- ▶ Before going in the field, take responsibility to seek out information - including resources from PDAC and AME – available online free of charge.
- ▶ Provide or ask about resources for safety-related topics such as travel and transportation, proper lifting, drill equipment safety, proper footwear and working in icy conditions.

RESOURCES

SAFETY GUIDELINES AND MANUALS

The PDAC Field Safety Pocket Guide is available in English, French and Spanish. The guide includes a variety of safe fieldwork practices that will increase one's awareness of the risks, hazards and dangerous situations inherent in exploration work. The pocket guide is available from PDAC; and more detailed information is available in the e3 Plus Health & Safety in Exploration Toolkit developed by the Health & Safety Committee of PDAC. These resources can be downloaded at <https://www.pdac.ca/priorities/responsible-exploration/health-and-safety>.

A comprehensive source of safety information for mineral exploration focused on Western Canada is AME's Safety Guidelines for Mineral Exploration in Western Canada. The guidelines are available online at <https://amebc.ca/what-we-do/health-safety/> and from the AME office.

TOOLS

Risk management and helicopter slinging training tools may be viewed and downloaded at <https://amebc.ca/resources/tools/>.

INFOGRAPHICS

PDAC is developing infographics – one on respiratory hazards can be viewed here: <https://www.pdac.ca/priorities/responsible-exploration/health-and-safety/>.

REPORTING

Complete the Canadian Mineral Exploration Environment, Health & Safety Survey at www.explorationsurvey.ca.

OUR 2019 AWARD RECIPIENTS

SAFE DAY EVERYDAY GOLD AWARD

For the first time in four years, there is a new recipient of the Safe Day Everyday Gold Award for having the highest number of hours without a lost-time incident. **Boart Longyear** receives the award for its record-achieving 1,227,880 hours. Notably, three-time recipient Major Drilling continued to operate without a lost-time incident with 1,172,906 hours.

There is also a new Gold award recipient for achieving the highest number of hours without a reportable injury – **Wallbridge Mining Company Limited** at 177,190 hours in 2019.

SAFE DAY EVERYDAY SILVER AWARD

21 organizations are presented with the Safe Day Everyday Silver Award for 2019. This award is presented to organizations reporting more than 10,000 hours throughout 2019 without a reportable injury.

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|--|---|----------------------------|
| Amex Exploration Inc. | Margaux Resources Ltd. | Rodren Drilling Ltd. |
| Cartwright Drilling Inc. | Nordgold SE | Sabina Gold & Silver Corp. |
| Coast Mountain Geological Ltd. | Noront Resources Ltd. | Sirios Resources Inc. |
| DGI Geoscience Inc. | North Coal Limited | Teck Resources Limited |
| Forage M3 Drilling | Northwest Territories Geological Survey | ZincX Resources Corp. |
| George Downing Estate Drilling Limited | Ontario Geological Survey | |
| IAMGOLD Corporation | Precision GeoSurveys Inc. | |
| Kirkland Lake Gold Ltd. | Purepoint Uranium Group Inc. | |

SAFE DAY EVERYDAY BRONZE AWARD

AME, PDAC and CDDA are pleased to award 34 companies with the Safe Day Everyday Bronze Award for reporting a year without a lost-time incident in 2019.

Alberta Geological Survey	Evrin Resources Corp.	Seabridge Gold Inc.
Altius Minerals Corporation	Forum Energy Metals Corp.	Sego Resources Inc.
Auracle Geospatial Science Inc.	Geotech Drilling Services Ltd.	Surge Copper Corp
Aurum Geological Consultants Inc.	Giga Metals Corporation	Tchaikazan Resources Inc
Avalon Advanced Materials Inc.	Hecla Québec	Team Drilling
Benton Resources Inc.	Inventus Mining Corp.	TerraLogic Exploration
CANEX Metals Inc.	Lithos Geological Inc.	Watts, Griffis and McQuat Limited
Centerra Gold Inc.	Major Drilling	Western Protection Alliance Inc.
De Beers Canada Ltd.	Midland Exploration Inc.	Yukon Geological Survey
Driftwood Diamond Drilling Ltd.	MoGeotechnical Services Inc.	Yukuskokon Professional Services LLC
Durfeld Geological Management Ltd.	North Arrow Minerals Inc.	
Eldorado Gold Lamaque	Saskatchewan Geological Survey	

SAFE DAY EVERYDAY PARTICIPATION AWARD

There are no new Participation awards for 2019. Previous recipients of the Participation award who have continued to participate in the survey every year include:

Altius Minerals Corporation (12 years)
Avalon Advanced Materials Inc. (14 years)
Benton Resources Inc. (12 years)
De Beers Canada Ltd. – Exploration (15 years)
Hy-Tech Drilling Ltd. (13 years)
Orano Canada Inc. (11 years)
Teck Resources Limited (15 years)
TerraLogic Exploration Inc. (15 years)
Wallbridge Mining Company Limited (11 years)

