

# 2018

**Toward a Safe Day Every Day**

**Results from the 2017 Canadian  
Mineral Exploration, Environment,  
Health & Safety Survey**



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**The Association for Mineral Exploration (AME) and the Prospectors & Developers Association of Canada (PDAC) are pleased to present their 13th annual industry environment, health and safety survey report. Here are some of the findings from the 2017 survey.**

There were **88 organizations** who responded to the survey on their practices and performance in 2017, up from 74 organizations in 2016, although down slightly from 91 in 2015. This mirrors a gradual recovery in the Canadian mineral exploration industry. Although the survey is voluntary, it represents a cross-section of the health and safety performance and practices of companies and government geological surveys active in, and supporting, exploration for precious and base metals, coal, uranium and diamonds.

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.

Although 2017 was a recovery year in the industry, the survey covers more than 9.5 million hours of work (the equivalent of nearly 5,000 full-time employees, up 60% from 6.0 million hours of work in 2016). The vast majority of respondents continues to report having environment, health and safety programming and planning..

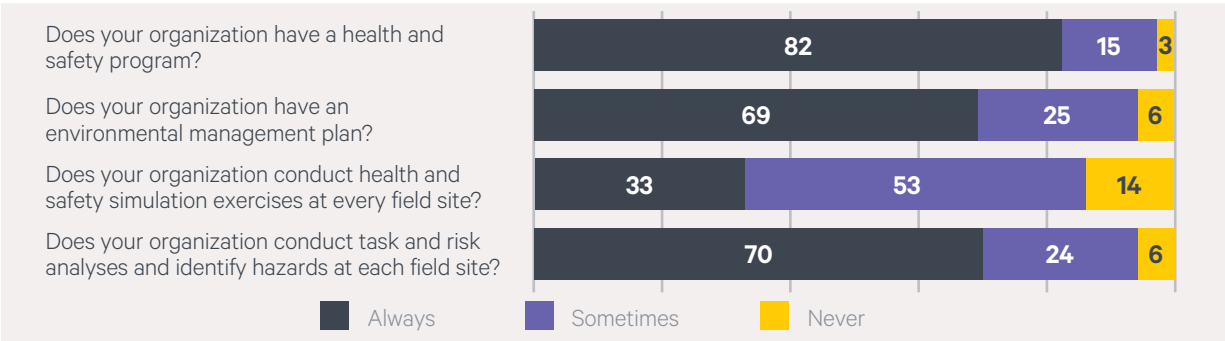
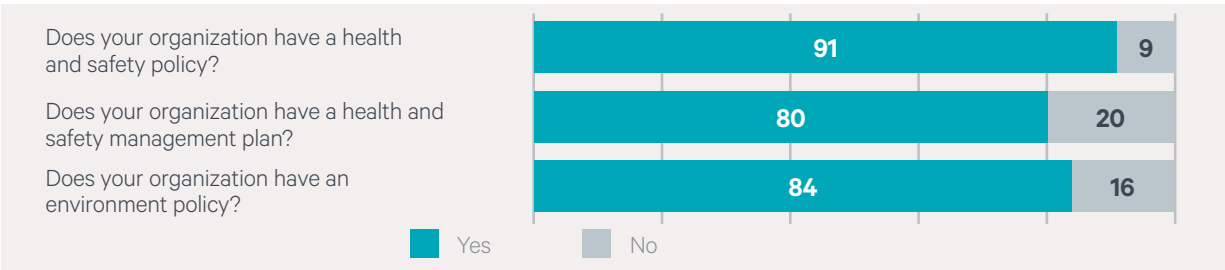


# SAFETY REPORTING

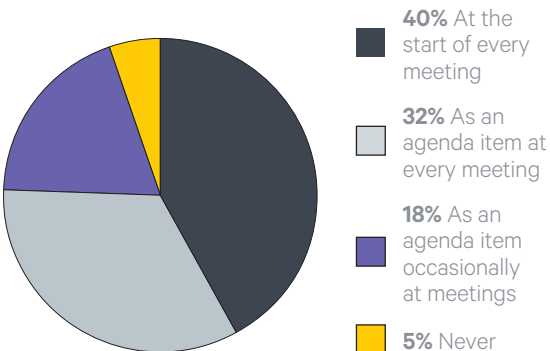
The AME/PDAC survey focuses on the various practices in place taken prior to incidents happening. These leading indicators, or proactive measures, vary according to the organization.

AME and PDAC continue to encourage safety discussions at both the staff and board level at all meetings. Overall, 66% of companies reported always discussing safety at the board level and 77% reported discussing worker safety at every meeting.

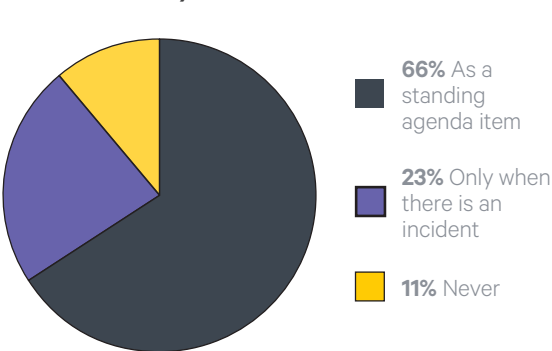
Although 100% of drilling and major mining companies participating in the survey reported always discussing safety at Board meetings, only 41% of junior companies – those without producing mines – reported always discussing safety at Board meetings. Comparatively, tailgate discussions appear to be much more common than Board safety discussions at the junior level, with 62% always discussing safety at worker meetings.



## DURING WORKER MEETINGS, SAFETY IS DISCUSSED:



## FOR BOARD OF DIRECTORS MEETINGS, SAFETY IS DISCUSSED:



# LAGGING INDICATORS

**Lagging indicators are measures of actions taken after incidents happened. Although these are reactive in nature, incidents in the past - whether serious incidents or near-misses, should be treated as learning opportunities.**

The statistics below are based on descriptions of 672 incidents reported by 46 companies.

The average worker can expect to have a career in mineral exploration without a lost-time injury. Although the lost-time incident frequency increased from 0.30 to 0.54 per 200,000 hours (100 worker years) between 2016 and 2017, this is the fourth consecutive year of a lost-time injury rate of under 1 per 100 worker years. It is expected that 2017 will mark the sixth consecutive year of the mineral exploration industry injury rate being below the rate for all Canadian industries – reported as 1.54 new claims per 100 covered workers in 2016 by the Association of Workers Compensation Boards of Canada. 2017 data for all industries was not available at press time.

With a recovery in exploration, the rate of injuries that result in the need for medical attention and/or a restricted work plan also rose from 2.54 per 200,000 hours in 2016 to 3.91 per 200,000 hours in 2017. Part of the rise may be attributed to more thorough incident reporting in addition to an influx of new workers influx of workers with little or no experience into the industry.

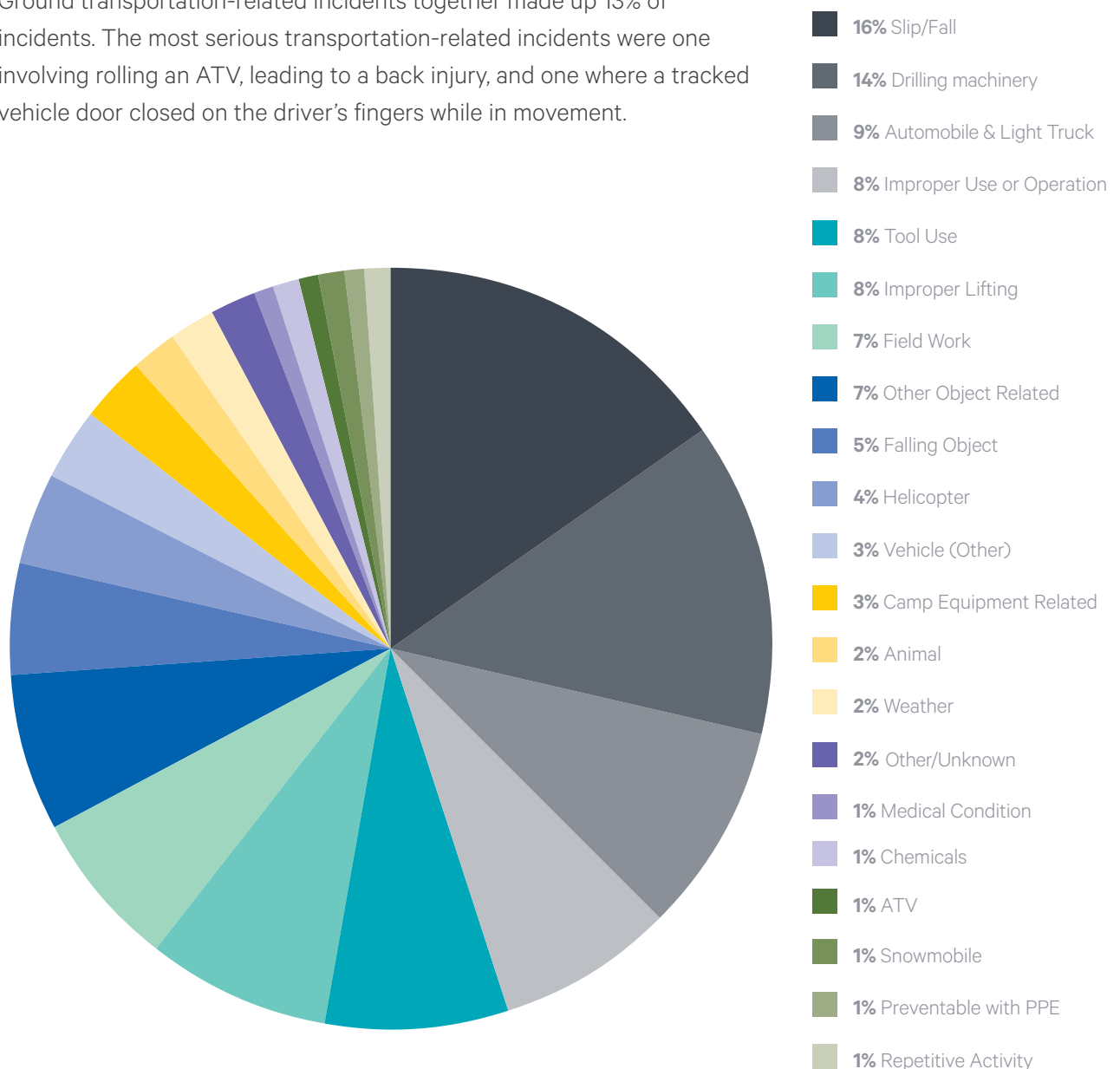


## INCIDENT TYPE

Slips and falls accounted for 16% of incidents (up from 11% in 2016 and 13% in 2015) and were the most common type of injury; these also accounted for ten, or 38% of lost-time incidents. These incidents included falls from height where arrest mechanisms were not used, and slips – often in the field and when using stairs.

Drilling machinery was attributed to 14% of incidents in 2017 (down from 20% in 2016 and 15% in 2015). Drilling machinery accounted for 3, or 12% of lost-time incidents; two of these were cuts including one incident where a driller’s thumb was pinched between two rod ends while ends were being threaded

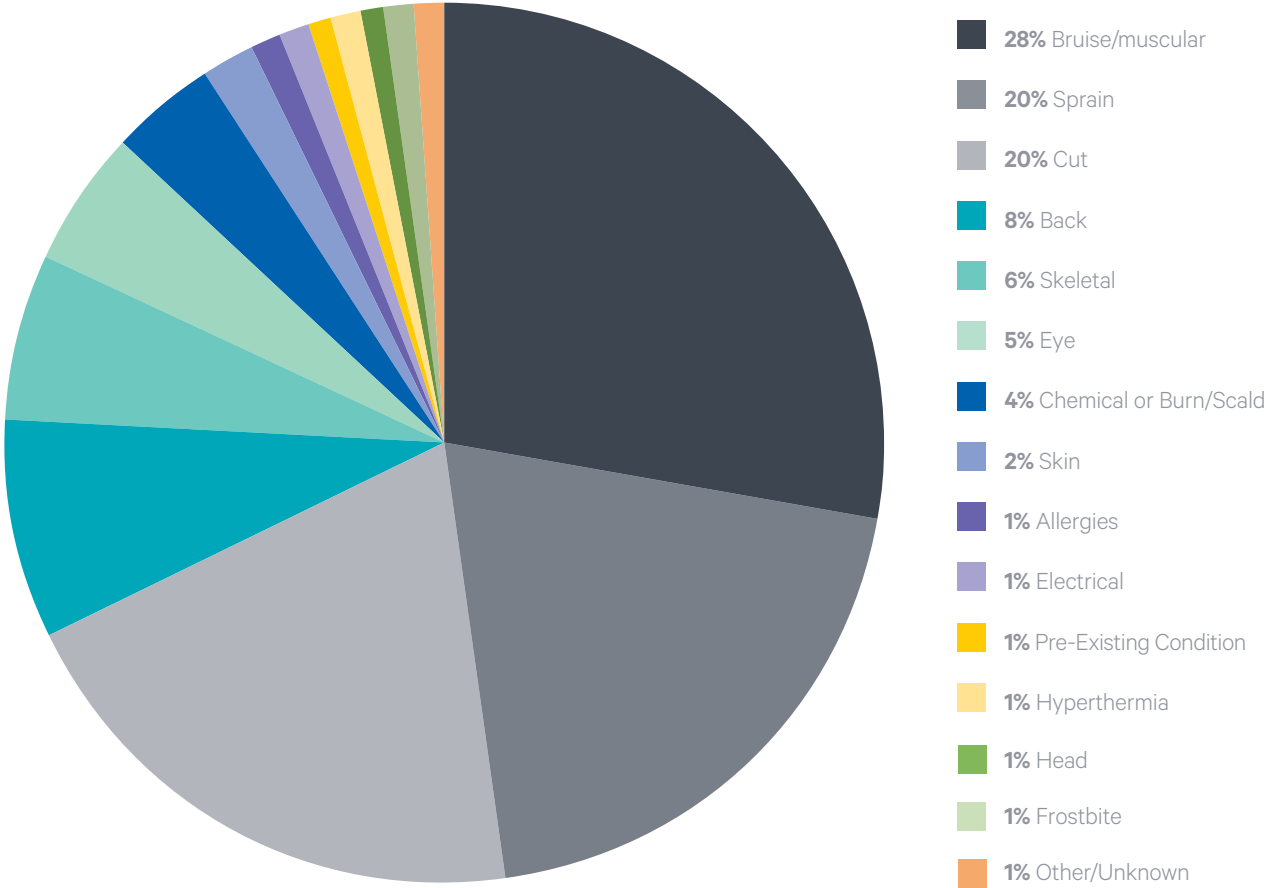
Ground transportation-related incidents together made up 13% of incidents. The most serious transportation-related incidents were one involving rolling an ATV, leading to a back injury, and one where a tracked vehicle door closed on the driver’s fingers while in movement.



## NATURE OF INJURY

There were 382 injuries - accounting for 57% of all incidents - reported in the survey. Bruises and muscular injuries accounted for 28% of the injuries in 2017 (up from 24% in 2016 and 18% in 2015). Sprains accounted for 20% of injuries – up from 15% in 2016, but the same as 20% in 2015. Cuts accounted for 20% of injuries, down from 24% in 2016 and 2015.

Of the 290 incidents where no injuries were reported, 16 were environmental incidents related to chemical or fuel spills, 3 were other environment-related incidents and 95 were related to property damage. The remaining 176 incidents had potential for injury or property damage.

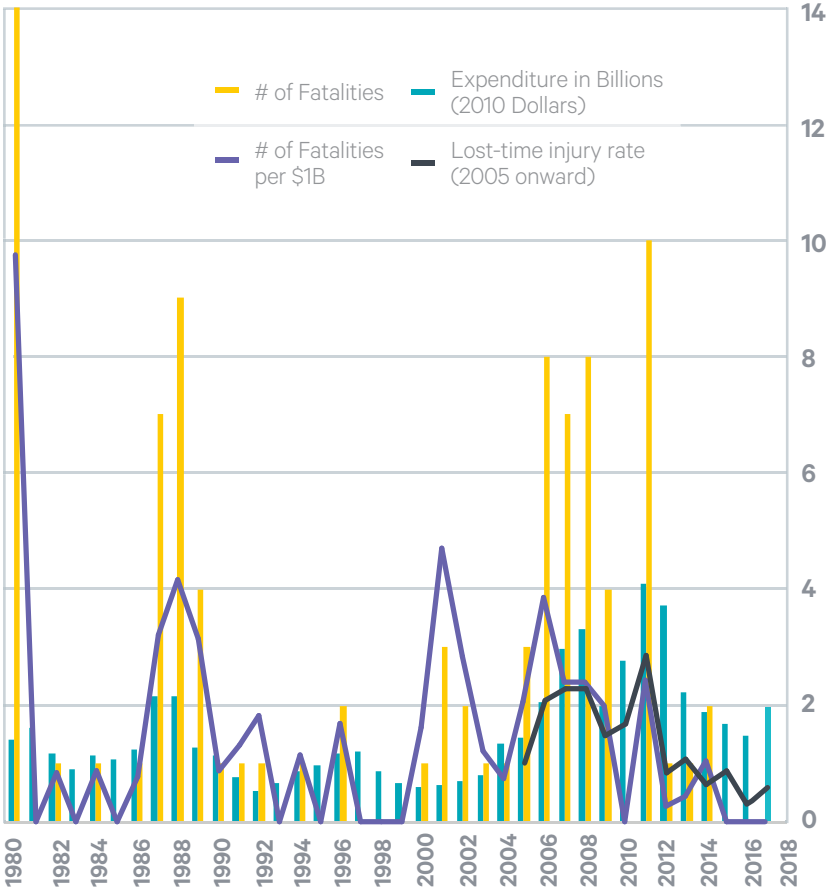


# FATALITIES

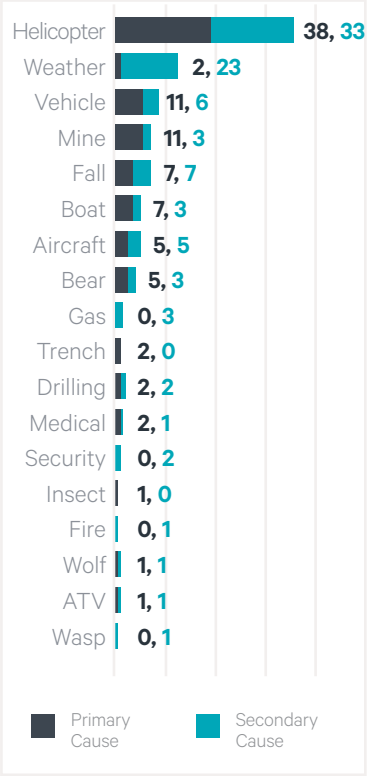
There have been 95 fatalities in mineral exploration in Canada since 1980, an average of nearly three per year in the period from 1980 through 2014. However, there have been 13 fatality-free years – including a fatality-free period starting in 2015. Reported causes of fatalities, both primary and secondary, are listed below.

Historically, increased numbers of fatalities and injuries have generally corresponded with peaks of activity in the industry. However, AME and PDAC hope that a combination of due diligence, learned lessons from past experience and growing culture of safety has ended this trend in Canada’s mineral exploration industry.

**FATALITIES IN MINERAL EXPLORATION IN CANADA 1980-2017**



**CAUSE OF FATALITIES 1980 - 2017**





# WHAT YOU CAN DO

- ▶ Ensure that the workforce participates in risk assessments and helps determine the best strategies and mitigations to keep everyone safe. Empower workers to have more ownership in safety.
- ▶ Ask questions about health and safety.
- ▶ 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 the 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 the PDAC; and more detailed information is available in the e3 Plus Health & Safety in Exploration Toolkit developed by the Health & Safety Committee of the PDAC. These resources can be downloaded at <http://www.pdac.ca/priorities/responsible-exploration/e3-plus/toolkits/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 <http://amebc.ca/issues/environment-health-safety/> and from the AME office.

### HELICOPTER SLINGING TRAINING

Helicopter slinging training is available for download at [www.explorationsurvey.ca](http://www.explorationsurvey.ca) and viewable at <http://bit.ly/heliHTM>. This intended to be the first of several new online tools designed for AME and PDAC members; please contact the associations if you have suggestions for further tools.

### REPORTING

Download the 2018 Canadian Mineral Exploration Environment, Health & Safety Survey incident reporting form at [www.explorationsurvey.ca](http://www.explorationsurvey.ca), and complete the 2018 survey online.

# OUR 2017 AWARD RECIPIENTS

## SAFE DAY EVERYDAY GOLD AWARD

Congratulations to **Major Drilling** for achieving the second consecutive year of having the highest number of hours without a lost-time incident – at **1,001,838 hours**. **George Downing Estate Drilling** is also a recipient of the Safe Day Everyday Gold Award for achieving **157,712 hours** without a reportable injury.

## SAFE DAY EVERYDAY SILVER AWARD

**35** organizations are presented with the Safe Day Everyday Silver Award. This award is presented to organizations reporting more than **10,000 hours** throughout 2017 without a reportable injury.

ABITIBI ROYALTIES LTD.	DRILLING	SASKATCHEWAN GEOLOGICAL SURVEY
ALTIUS MINERALS CORPORATION	GOLDEN VALLEY MINES LTD.	STORNOWAY DIAMOND CORPORATION
ANGLO AMERICAN	MARATHON GOLD CORPORATION	TECH DIRECTIONAL SERVICES
AURACLE REMOTE SENSING	MARGAUX RESOURCES LTD.	TECK RESOURCES LIMITED
BARRICK GOLD INC. - HEMLO OPERATION	MIDLAND EXPLORATION INC.	TERRALOGIC EXPLORATION
BENTON RESOURCES INC.	MORECORE DRILLING	TMAC RESOURCES INC.
CAMECO CORPORATION	NEW BRUNSWICK ENERGY AND RESOURCE DEVELOPMENT	TRANSITION METALS CORP.
COAST MOUNTAIN GEOLOGICAL LTD.	NORTH COAL LTD.	TREVALI MINING CORPORATION
DE BEERS CANADA INC. - EXPLORATION	NOVA SCOTIA DEPARTMENT OF NATURAL RESOURCES	VAL-D'OR MINING CORPORATION
DETOUR GOLD EXPLORATION	PROBE METALS INC.	YUKON GEOLOGICAL SURVEY
DGI GEOSCIENCE INC.	PUREPOINT URANIUM GROUP INC.	
DOMINION DIAMOND MINE ULC	RED PINE EXPLORATION INC.	
DRIFTWOOD DIAMOND	SABINA GOLD & SILVER CORP.	

## SAFE DAY EVERYDAY BRONZE AWARD

AME and the PDAC have awarded **35** organizations this award for reporting a calendar year without lost time in 2017.

AURUM GEOLOGICAL CONSULTANTS INC.	GEOTECH DRILLING SERVICES LTD.	PEREGRINE DIAMONDS LIMITED
AVALON ADVANCED MATERIALS INC.	GLENCORE COPPER	RICHMOND MINERALS INC
BOART LONGYEAR DRILLING SERVICES	INDEPENDENCE GOLD CORP.	RIO TINTO EXPLORATION CANADA INC.
BRITISH COLUMBIA GEOLOGICAL SURVEY BRANCH	JM FORESTRY AND EXPLORATION	ROUGH RIDER EXPLORATION LIMITED
BURTON CONSULTING INC.	LITHOS GEOLOGICAL INC.	SEGO RESOURCES INC.
CANTERRA MINERALS CORPORATION	MANITOBA GEOLOGICAL SURVEY	TAHOE RESOURCES INC.
DURFELD GEOLOGICAL MANAGEMENT LTD	MILLROCK RESOURCES INC.	TEAM DRILLING
EASTMAIN RESOURCES INC.	MOGEO TECHNICAL SERVICES INC	TRI ORIGIN EXPLORATION LTD.
ELDORADO GOLD LAMAQUE	NORDGOLD SE	TYPHOON EXPLORATION INC.
FORACO CANADA LTD.	ORANO CANADA INC.	WALLBRIDGE MINING COMPANY LIMITED
FORUM ENERGY METALS CORP.	PACIFIC EMPIRE MINERALS CORP.	WATTS, GRIFFIS AND MCOUAT
	PACIFIC RIDGE EXPLORATION LTD.	YAMANA GOLD INC.

## SAFE DAY EVERYDAY PARTICIPATION AWARD

**Altius Minerals Corporation** and **Benton Resources Inc.** are recognized for participating in the Canadian Mineral Exploration Environment, Health & Safety Survey for ten consecutive years.

Previous recipients of the Participation award who continued to participate in the survey include:

AVALON ADVANCED MATERIALS INC. (12 YEARS)  
DE BEERS CANADA INC. – EXPLORATION (13 YEARS)  
HY-TECH DRILLING LTD. (11 YEARS)  
ONTARIO GEOLOGICAL SURVEY (11 YEARS)  
TECK RESOURCES LIMITED (13 YEARS)  
TERRALOGIC EXPLORATION (13 YEARS)



**TOWARD A SAFE DAY EVERYDAY** is jointly produced by the Association for Mineral Exploration British Columbia and the Prospectors & Developers Association of Canada.

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