

A wide-angle landscape photograph showing two hikers on a rocky mountain peak. The hiker on the left is kneeling and looking at a notebook, while the hiker on the right is standing and looking down. The background features rolling green hills, a large white glacier in a valley, and a range of snow-capped mountains under a blue sky with scattered clouds.

**2016**

The Canadian Mineral Exploration  
Health & Safety Annual Report

Photo credits:

*Ryan Versloot – cover;*

*Jimmy Barrieau – p. 5;*

*Daniel Maddalena– back cover.*

## The Association for Mineral Exploration (AME) and the Prospectors & Developers Association of Canada (PDAC) are pleased to present their 12th annual industry environment, health and safety survey report. Here are some of the findings from the 2016 survey.

There were **74 organizations** who responded to the full survey, down from **91** in 2015. This mirrors a continued downturn in the industry as mineral exploration expenditures reached their lowest since 2005. Although the survey is voluntary, it represents a cross-section of the health and safety performance of government geological surveys and companies active in, and supporting, exploration for precious and base metals, uranium, diamonds, coal and potash.

The survey provides a snapshot of leading indicators related to environment, health and safety as well as a report of incidents throughout the year. More importantly, it has inspired the development of both AME and PDAC's safety workshops as well the associations' new helicopter slinging training presentation – viewable at [explorationsurvey.ca](http://explorationsurvey.ca). The 312 incidents reported by 37 companies all present opportunities for learning; and both associations will look at ways of using the data to improve and communicate a culture of environmental management and best practices in health and safety.

### THE GOOD ...

All but one respondent (99%), reported having some degree of health and safety programming, planning and reporting. There was a sharp increase in the percentage of companies reporting having a health and safety policy – up from 88% to 96%. Furthermore, 97% of companies reported having a program, a slight increase from 2015 when 95% reported having one, and nearly double the percentage from 2005 when only 49% reported having a health and safety program.

The vast majority reported having a management plan, 85% - up from 81%; conducting simulations, 88% - up from 82%; conducting risk analyses, 99% - up from 95%; discussing safety at worker meetings, 100% - up from 95%; and discussing safety at Board meetings – 93%, up from 90%.

**The average worker can expect to have a career in mineral exploration without a lost-time injury. The lost time incident frequency hit a record low of 0.30 per 200,000 hours in 2016**, down from 0.87 per 200,000 hours in 2015, and the third consecutive year of a rate of less than 1 incident per 200,000 hours – or 100 years. The rate for all Canadian industries as reported by the Association of Workers Compensation Boards of Canada, meanwhile, hit a record low of 1.51 in 2015 (2016 data will be available in early 2017).

### BUT ...

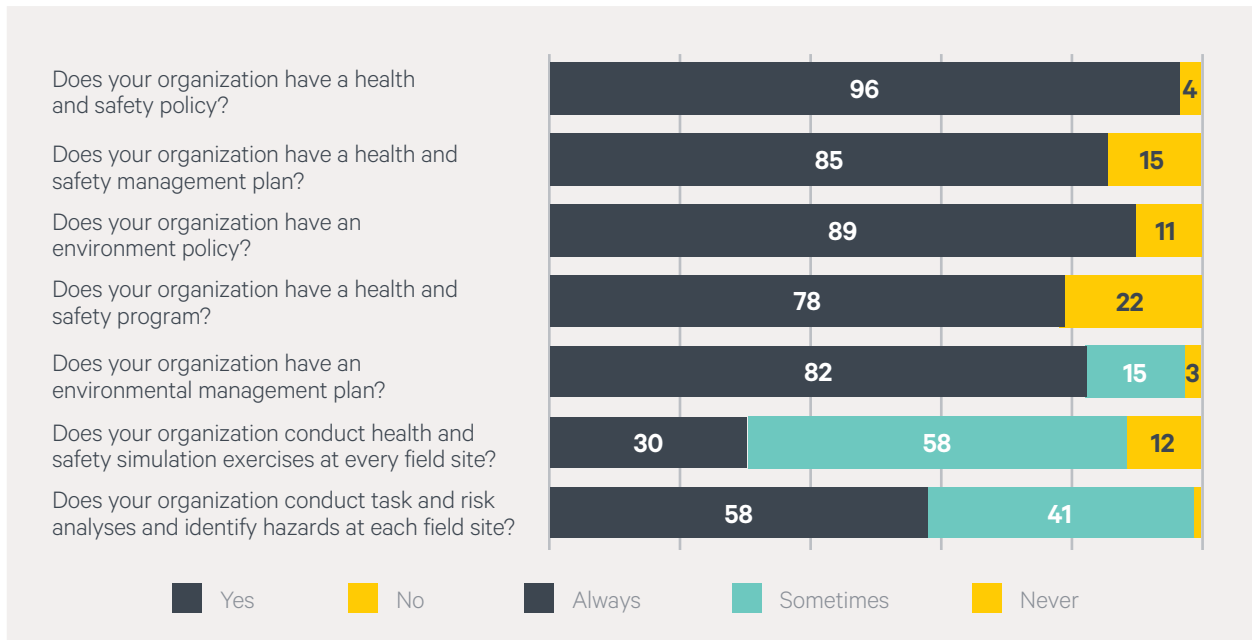
Despite a campaign by AME and PDAC to encourage directors to discuss safety at Board meetings, only 69% always do so, and only 73% discuss worker safety at every meeting; these figures have improved only slightly since 2014.

Record-low injury rates are an achievement tempered by an expectation that rates may inch up with a renewed return of exploration activity, as inexperienced workers enter the industry. Furthermore, companies should address a reportable injury rate of 2.54 per 200,000 hours; this rate includes injuries that result in the need for medical attention and/or a restricted work plan.

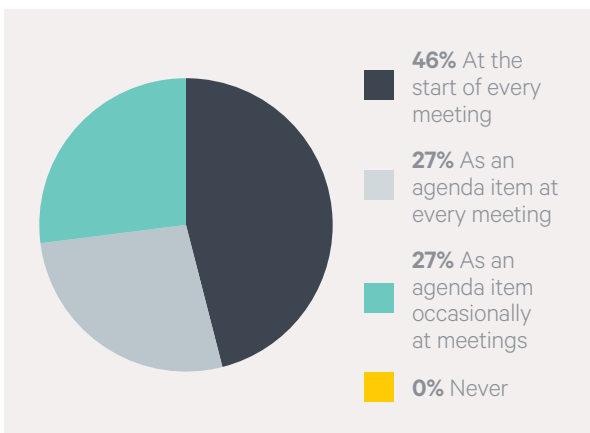
And although **95%** discuss safety at worker meetings, only **74%** always do so. However, there has been slight improvement in these percentages since the 2014 survey. Discussing safety at all board and worker meetings is an important leading indicator of a commitment to a culture of safety within a company.

# SAFETY REPORTING

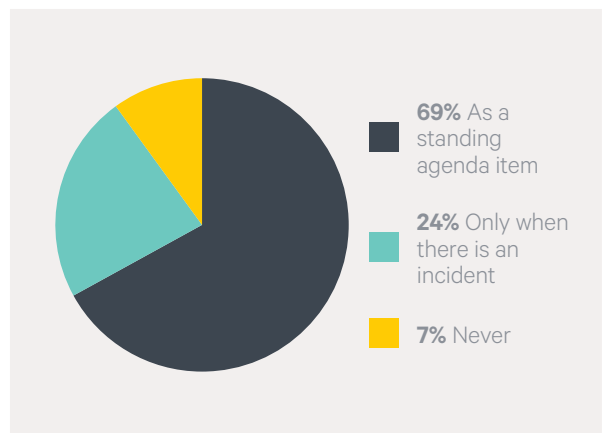
The 2016 survey focused on the various practices in place taken prior to incidents happening. These leading indicators, or proactive measures, vary according to the organization.



## DURING WORKING MEETINGS, SAFETY IS DISCUSSED:



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





# LAGGING INDICATORS

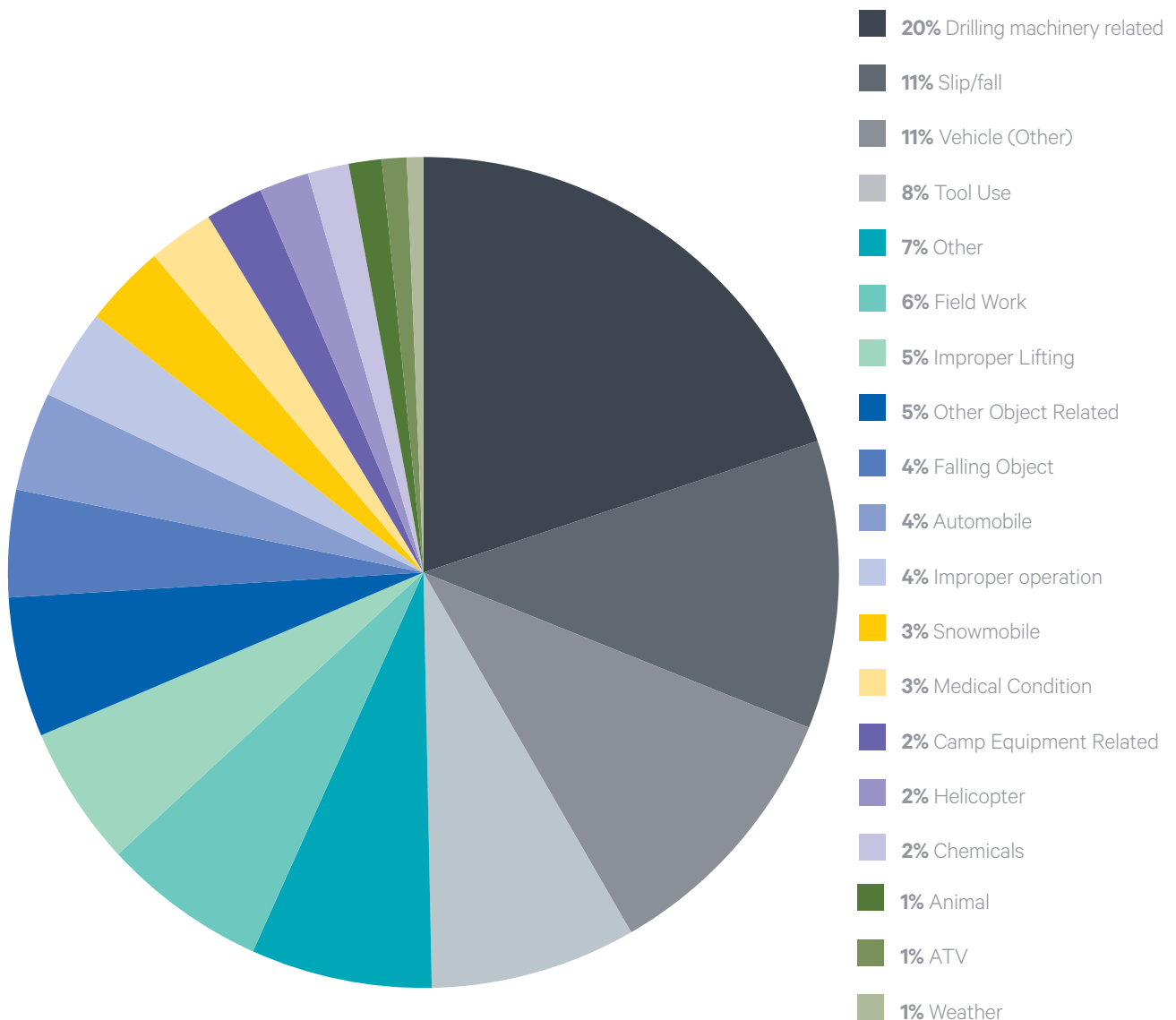
Lagging indicators are measures of actions taken after incidents happened. Although there are lessons learned in figures such as lost-time incidents, these are reactive in nature. However, incidents in the past – whether serious incidents or near-misses, should be treated as learning opportunities.

The statistics that follow are based on descriptions of 312 incidents reported by 37 companies that occurred in 2016. The most serious injury reported in 2016 appears to have been when a driller strained his back while pulling drill rods at an exploration site, and was not able to return to work for the rest of the season.



## TYPE OF INCIDENT

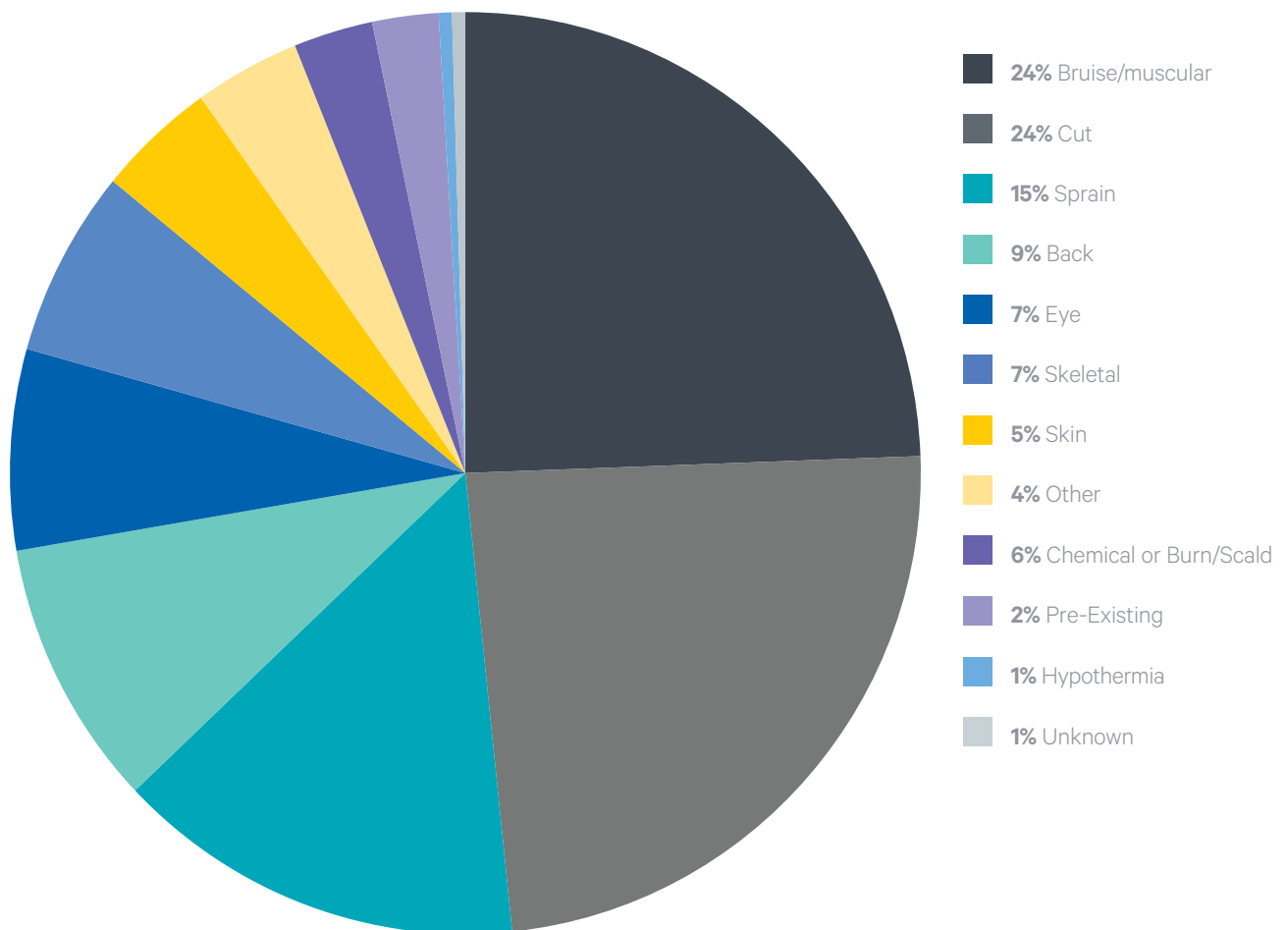
Drilling machinery was attributed to 20% of incidents in 2016 – up from 15% of incidents in 2015. Slips/falls were attributed to 11% of incidents – down from 13% in 2015, and work-related vehicle (e.g. utility vehicles, specialized mining equipment) incidents were attributed to 11% up from 5% in 2015. Drilling machinery and slips falls continue to be the primary two incident types in mineral exploration, where the majority of vehicle related incident reports (17 – or 52%) are focused on minor property damage incidents without injury.



## NATURE OF INJURY

There were 213 injuries reported in 2016; no injuries were reported for 99 incidents.

Of these bruises and muscular injuries were most prevalent at 24% in 2016 – up from 18% in 2015. Cuts accounted for 24% in 2016, same as in 2015. Sprains accounted for 15% of injuries, down from 20% in 2015.

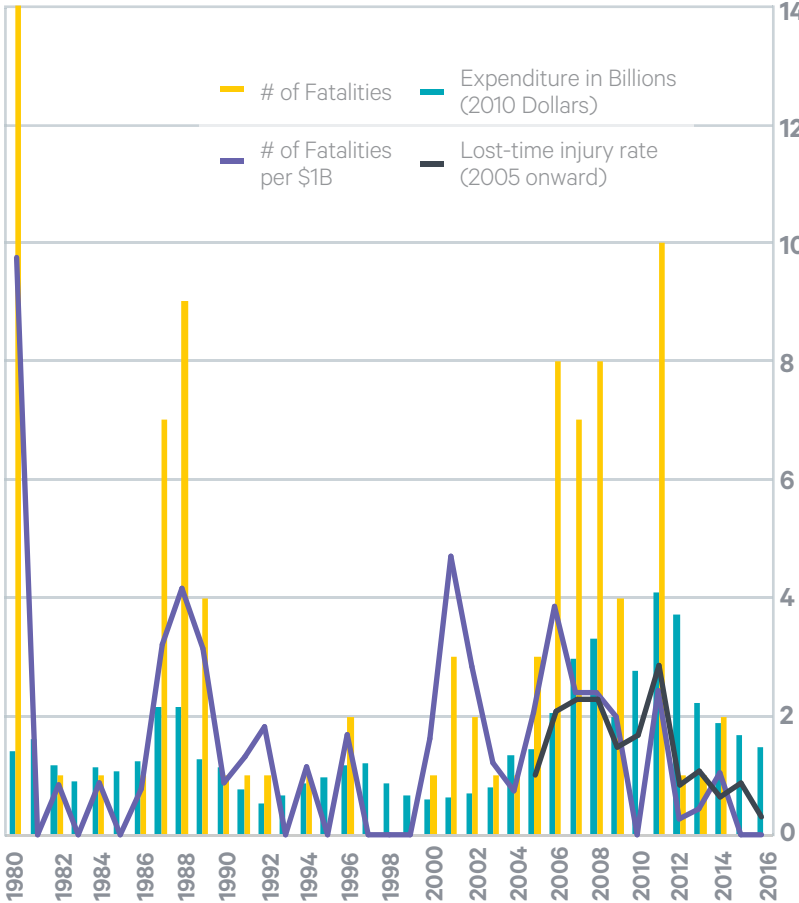


# FATALITIES

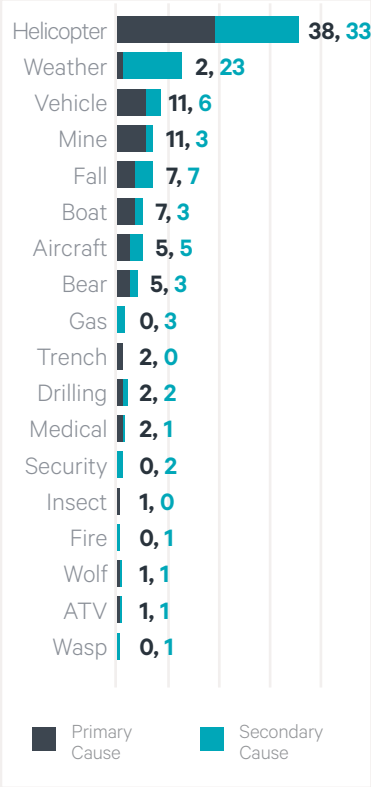
Overall, there have been 95 fatalities in mineral exploration since 1980, an average of nearly three per year in the period from 1980 through 2014. However, there have been several fatality-free years, usually coinciding with industry downturns. Reported causes of fatalities, both primary and secondary, are listed below.

Recent data suggest that increased numbers of fatalities and injuries have generally corresponded with peaks of activity in the industry. AME and the PDAC hope that industry can learn from this trend to prevent any further fatalities in Canada’s dynamic mineral exploration industry.

## FATALITIES IN MINERAL EXPLORATION IN CANADA 1980-2016



## CAUSE OF FATALITIES 1980-2016





# WHAT YOU CAN DO

- ▶ Ask your employer or client 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; it can also be downloaded at <http://www.pdac.ca/policy/health-safety/policy/2011/01/06/health-safety-field-guide>.

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 [www.amebc.ca](http://www.amebc.ca) and from the AME office.

More detailed information is available in the e3 Plus Health & Safety in Exploration Toolkit developed by the Health & Safety Committee of the PDAC. This toolkit is available online at [www.pdac.ca/e3plus](http://www.pdac.ca/e3plus).

### HELICOPTER SLINGING TRAINING

Helicopter slinging training is available at [www.explorationsurvey.ca](http://www.explorationsurvey.ca) and viewable directly at [www.explorationsurvey.ca](http://www.explorationsurvey.ca). Downloadable files in both English and Spanish are available at <http://bit.ly/2ulo3Lf>. 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 2017 Canadian Mineral Exploration Environment, Health & Safety Survey incident reporting form at [www.explorationsurvey.ca](http://www.explorationsurvey.ca), and complete the 2017 survey online. The annual report is also available here.

# OUR 2016 AWARD RECIPIENTS

## SAFE DAY EVERYDAY GOLD AWARD

Congratulations to **Major Drilling** for achieving **864,227 hours** in exploration without a lost-time incident in 2015, and **Teck Resources Limited** for achieving **122,105 hours** without a reportable injury.

Other notable records include: **Boart Longyear** with **845,848 hours** without a lost-time injury. **Geotech Drilling, Tahoe Resources Canada, Falco Resources Ltd., Team Drilling** and **Integra Gold Corp.** also had records of more than **200,000 hours (or 100 person years)** without a lost-time injury.

## SAFE DAY EVERYDAY SILVER AWARD

**23** organizations are presented with the Safe Day Everyday Silver Award. This award is presented to organizations reporting more than **10,000 hours** throughout 2016 without a reportable injury.

ALTIUS MINERALS  
CORPORATION

ANGLO AMERICAN  
EXPLORATION (CANADA) LTD.

APEX GEOSCIENCE LTD.

BENTON RESOURCES INC.

COAST MOUNTAIN  
GEOLOGICAL LTD.

CRONE GEOPHYSICS &  
EXPLORATION LTD.

DE BEERS CANADA INC. -  
EXPLORATION

DOMINION DIAMOND EKATI  
CORPORATION

FORUM URANIUM CORP.

KLONDIKE GOLD CORP.

MANITOBA MINES BRANCH

MARATHON GOLD  
CORPORATION

MIDLAND EXPLORATION INC.

RED PINE EXPLORATION INC.

RNC MINERALS

SABINA GOLD & SILVER CORP.

SASKATCHEWAN GEOLOGICAL  
SURVEY

SOQUEM INC.

TERRALOGIC EXPLORATION  
INC.

WALLBRIDGE MINING  
COMPANY LIMITED

WATTS, GRIFFIS AND MCOUAT

WESTERN PROTECTION  
ALLIANCE INC.

YUKON GEOLOGICAL SURVEY

## SAFE DAY EVERYDAY BRONZE AWARD

AME and the PDAC have awarded **40** organizations this award for reporting a calendar year without lost time in 2016.

ALBERTA GEOLOGICAL SURVEY  
AREVA RESOURCES CANADA  
INC.  
AVALON ADVANCED  
MATERIALS INC.  
BOART LONGYEAR DRILLING  
SERVICES  
BRITISH COLUMBIA  
GEOLOGICAL SURVEY  
BUREAU DE LA CONNAISSANCE  
GÉOSCIENTIFIQUE DU QUÉBEC  
CANAUSS COAL LTD.  
CANTERRA MINERALS  
CORPORATION  
CARACLE CREEK  
INTERNATIONAL CONSULTING  
INC.  
CARTWRIGHT DRILLING  
DENISON MINES CORP.  
DETOUR GOLD CORPORATION

DGI GEOSCIENCE INC.  
FALCO RESOURCES LTD.  
FB DRILLING LTD.  
FORACO CANADA LTD.  
GEOLOGICAL SURVEY OF  
NEWFOUNDLAND AND  
LABRADOR  
GEOTECH DRILLING SERVICES  
LTD.  
GLENCORE COPPER  
GLOBEX MINING ENTERPRISES  
INC.  
GOOD EARTH DRILLING  
SERVICES LTD.  
IAMGOLD CORPORATION  
INDEPENDENCE GOLD CORP.  
KIVALLIQ ENERGY  
CORPORATION  
LITHOS GEOLOGICAL INC.  
MINIFOCUS EXPLORATION CORP.

NORONT RESOURCES LTD.  
NORTH AMERICAN NICKEL INC.  
ONTARIO GEOLOGICAL SURVEY  
PACIFIC RIDGE EXPLORATION  
LTD.  
PEREGRINE DIAMONDS LTD.  
PUREPOINT URANIUM GROUP  
INC.  
RIO TINTO EXPLORATION  
CANADA INC.  
ROUGH RIDER EXPLORATION  
LIMITED  
SCOZINC MINING LTD.  
SERENGETI RESOURCES INC.  
TAHOE RESOURCES CANADA  
TEAM DRILLING  
TYPHOON EXPLORATION INC.  
VALE ONTARIO OPERATIONS

## SAFE DAY EVERYDAY PARTICIPATION AWARD

Two organizations are recognized for participating in the Canadian Mineral Exploration Environment, Health & Safety Survey for ten consecutive years.

HY-TECH DRILLING LTD.  
ONTARIO GEOLOGICAL SURVEY



**TOWARD A SAFE DAY EVERYDAY:** *The Canadian Mineral Exploration Health & Safety Annual Report 2016* is jointly produced by the Association for Mineral Exploration British Columbia and the Prospectors & Developers Association of Canada.

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