



2023

**Toward a Safe Day Every Day:
Beyond the Toolbox Meeting**

**Results from the 2022
Canadian Mineral Exploration,
Environment, Health & Safety Survey**

TOWARD A SAFE DAY EVERY DAY 2023: BEYOND THE TOOLBOX MEETING

Results from the 2022 Canadian Mineral Exploration Environment, Health & Safety Survey

Introduction

The Association for Mineral Exploration (AME), Prospectors & Developers Association of Canada (PDAC) and Canadian Diamond Drilling Association (CDDA) are pleased to present the 18th annual Toward a Safe Day Every Day report with findings from the Canadian Mineral Exploration Environment, Health and Safety Survey. The 2022 survey had 49 **contributing organizations**, down from 54 in 2021, and from the record of 117 in 2018. Given the decrease in the number of contributing organizations, the number of hours reported decreased from 8.1 million hours in 2021 to 7.0 million hours in 2022.

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.

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.

The 2022 survey covers **7.0 million hours of work** – the equivalent of 3,500 full-time employees.

The average worker can expect to have a career in mineral exploration without a lost-time injury: our survey results indicate a lost-time injury frequency rate of 0.46 in 2022, down from 0.81 in 2021. We expect this to be the eleventh consecutive year of the mineral exploration industry lost-time injury frequency rate being below the rate for all Canadian industries – most recently reported as 1.75 new claims per 100 covered workers in 2021 by the Association of Workers Compensation Boards of Canada.

Unfortunately, with a resurgence in mineral exploration activity, there were three fatalities in 2022, the highest number since 2011; two additional fatalities have been reported to date in 2023. The fatalities in 2022 and 2023 did not share any commonalities. They ranged from a helicopter crash to a drowning incident, a poorly maintained ice road in the north that led to a bulldozer falling through the road, a fatal incident during a drill rig move, and another fatality resulting from a side-by-side incident.

TOOLBOX MEETINGS

A toolbox meeting, also known as a toolbox talk, or safety meeting is a brief and informal training or discussion conducted on site by a competent person, either pre-task or post-incident, with the intention of bringing together the work team to discuss, teach, or learn ways to enhance the working environment.

The purpose of a toolbox meeting is to discuss relevant safety topics, share information about potential hazards, reinforce safety procedures, and address any concerns or questions raised by the team.

Key aspects of a toolbox meeting include:

Safety Briefing: Discussion of specific safety topics related to the tasks at hand, recent incidents, or general safety practices.

Risk Assessment: Identification and evaluation of potential hazards associated with the upcoming work.

Emergency Procedures: Review of emergency protocols, including evacuation plans and first aid procedures.

Tool and Equipment Safety: Emphasis on the proper use, maintenance, and inspection of tools and equipment.

Communication: Encouragement of open communication among team members regarding safety concerns and suggestions.

Documentation: Keeping records of toolbox meetings, including topics discussed, attendees, and any action items assigned.

Toolbox meetings contribute to a safety-conscious work culture by promoting awareness, communication, and a shared commitment to maintaining a secure work environment. They are an essential component of a comprehensive safety program. The prevalence of toolbox discussions focused on safety has increased over time (see Safety Reporting below). However, companies are advised that the toolbox meetings are only one facet of a safe, successful program.

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. The percentage of companies reporting health and safety programs and policies – were at 98% and 98% respectively, compared to 98% and 94% in 2021.

For the third year in a row, all organizations – 100% – reported discussions of safety at worker meetings (first reported at 56% in 2012, and up from 78% in 2020). Discussions at Board meetings were also far more prevalent – at 96% (up from 66% in 2012 and 94% in 2021). AME, PDAC and CDDA hope that this focus on safety will continue to improve (one improvement though, is that safety is a standing agenda item at worker meetings at 92% and at Board meetings for 63% of respondents).

The percentage of companies reporting always or sometimes having return-to-work policies increased from 85% in 2021 to 94% in 2022.

ENVIRONMENTAL REPORTING

The percentage of companies reporting having an environmental policy increased from 89% in 2021 to 94% in 2022, and the percentage reporting environmental management plans has been steadily declining from 81% in 2020 to 79% in 2021 and 76% in 2022. In recent years, there had been an increase likely due to increasingly robust due diligence required through legislation, permit requirements and consultation with Indigenous peoples; however, it appears that smaller companies and companies contracting out their exploration work do not necessarily have these in place.

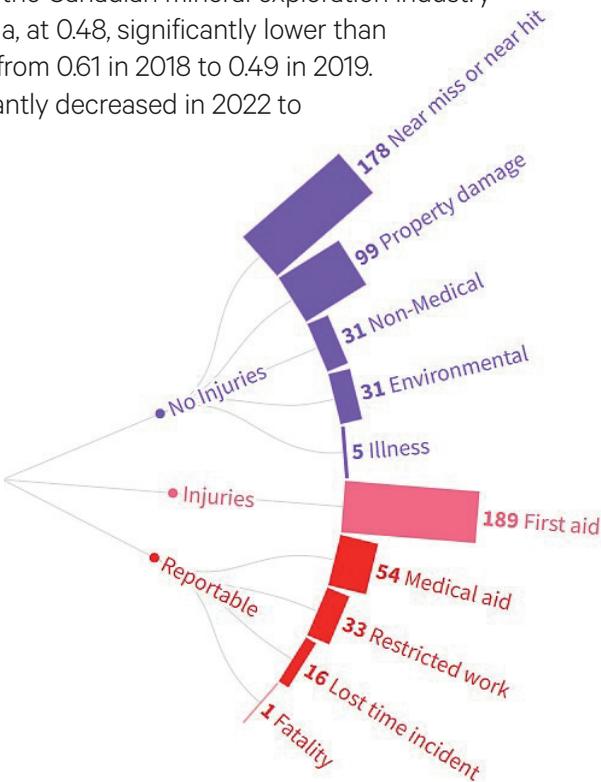
LAGGING INDICATORS

Lagging indicators are measures of actions taken after incidents happened. AME, PDAC and CDDA encourage organizations to report these to inform initiatives and to build awareness of the risk of both injury and damage to property.

Through the survey, 24 companies reported 637 incidents, compared to 24 companies reporting 739 incidents in 2021. Of these, 293 incidents (46%) resulted in injury, significantly down from 419 incidents (57%) in 2021 and 351 incidents (52%) in 2020. Only 87 of these (14% of incidents, and 32% of injuries) resulted in the need for medical attention and/or a restricted work plan.

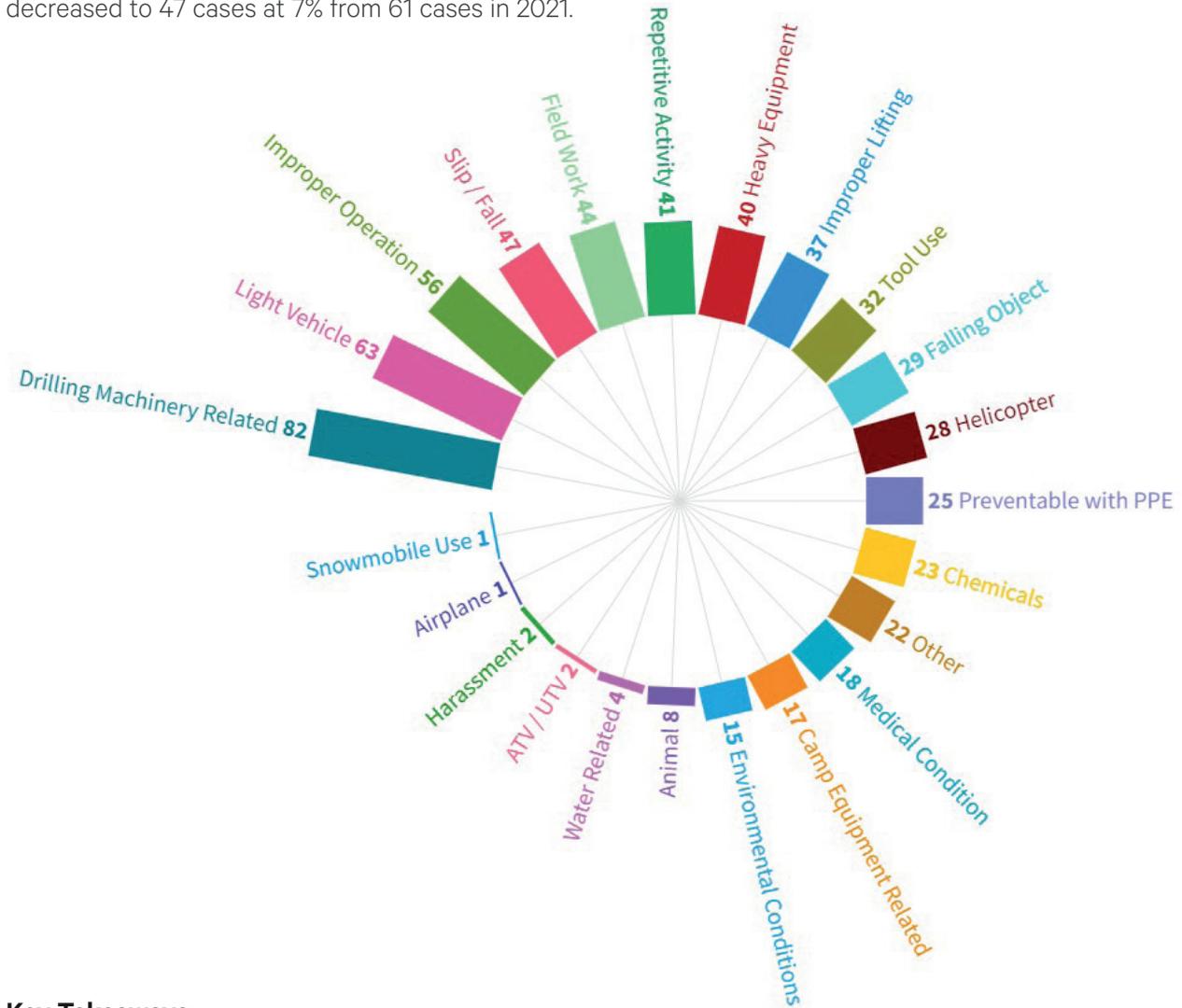
For the tenth year in a row, the lost-time injury rate in the Canadian mineral exploration industry is expected to be below that of all industries in Canada, at 0.48, significantly lower than 0.81 in 2021, and close to 0.51 in 2020, after declining from 0.61 in 2018 to 0.49 in 2019. The frequency rate of reportable injuries also significantly decreased in 2022 to 2.96 down from 4.43 in 2021, and from 3.52 in 2020.

Classification of Incident



INCIDENT TYPE

Key themes in incident type continues to include incidents relate to drilling machinery and light vehicles (accounting for 23% of all 637 incidents), Improper operation of machinery (9%) and slip and falls decreased to 47 cases at 7% from 61 cases in 2021.



Key Takeaways:

Toolbox meetings to identify risk and hazards

Conduct situational awareness checks and do field level risk assessments for each task.

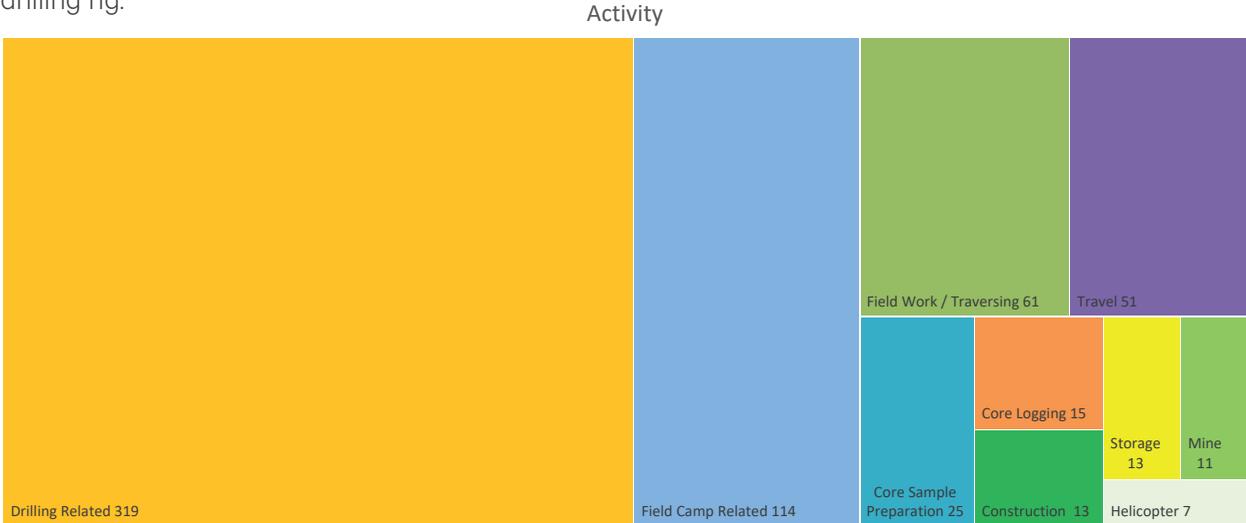
Make sure that all appropriate personal protective equipment – from safety glasses to proper footwear – is used.

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

Inspect all mobile equipment pre-use, perform preventative maintenance, and consider GPS and driver behaviour technologies in your mobile equipment safety program.

INCIDENT RELATED TO SPECIFIC ACTIVITIES

Drilling related incidents and incidents related to field work continue to be the major activities where majority of incidents take place. From the 637 incidents, there were 8 cases where an incident was not associated with any activity. From 629 incidents, 51 percent of the incidents took place in and around a drilling rig.



It is AME, PDAC and CDDA’s ongoing commitment to minimizing high frequency of incidents in the mineral exploration industry, the reporting of potential incidents is a key step. This reporting process empowers exploration teams across Canada to assess these potential incidents, enabling them to follow up on-site and implement protocols aimed at mitigating their impact at their workplace. It’s a proactive approach that enhances safety measures in the exploration industry.

The Health, Safety, and Reclamation Code for Mines in British Columbia (the BC Code) outlines reporting requirements for dangerous occurrences in the province. Below, selected sections are reproduced for reference.

1.7.1 Reportable Incident

(1) The following incident is classified as dangerous occurrences and must be reported in accordance with section 1.7.2:

- (a) an incident that causes serious injury or loss of life;
- (b) an incident that had the potential to cause serious injury or loss of life

(2) In addition to an incident referred to in subsection (1), the following incident is classified as dangerous occurrences and must be reported in accordance with section 1.7.2

- (g) (v) unintentional contact with a falling object or drilling or other rotational equipment.

1.7.2 Notification of a Reportable incident

(1) In the event of a reportable incident, the manager must

- (a) in the case of a reportable incident referred to in section 1.7.1. (1) (a), within 4 hours of the reportable incident, provide a verbal notification of the incident to an inspector, the management co-chair, and the worker co-chair of the OHS committee or their designates and the local union...

One point of contact for mines to report:

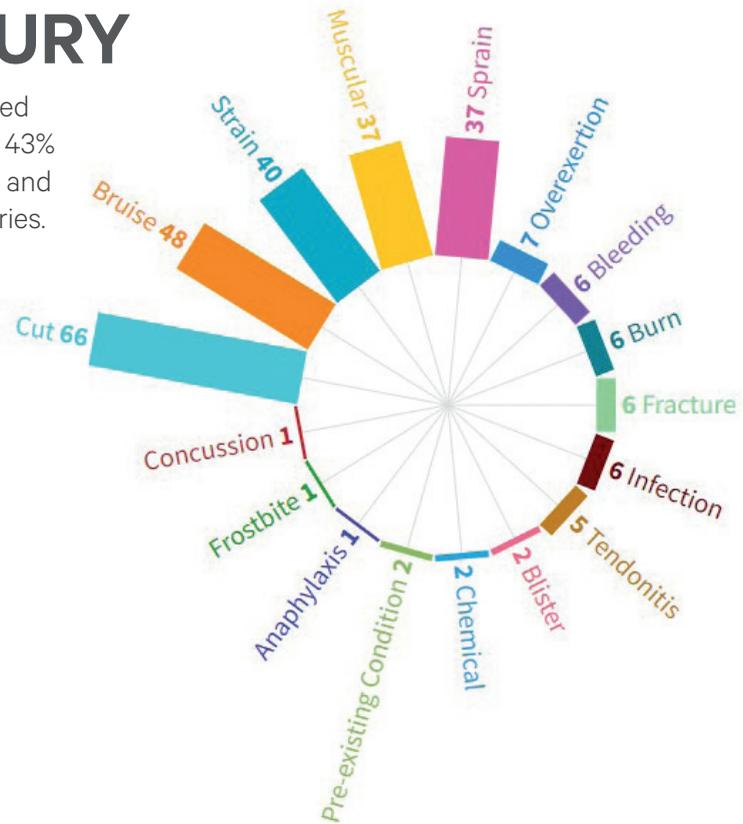
- Dangerous Occurrences
- Incidents
- Accidents or other emergencies

All reports are received and triaged by an On-Call Inspector

Mine Incident Reporting Line 24/7 Phone: 1-888-348-0299 Email: MineIncidents@gov.bc.ca

NATURE OF INJURY

In 2022 there were 273 incidents that resulted in some form of an injury which account for 43% of all incidents. Cuts, bruises, strain, sprains, and muscular injuries account for 84% of all injuries.



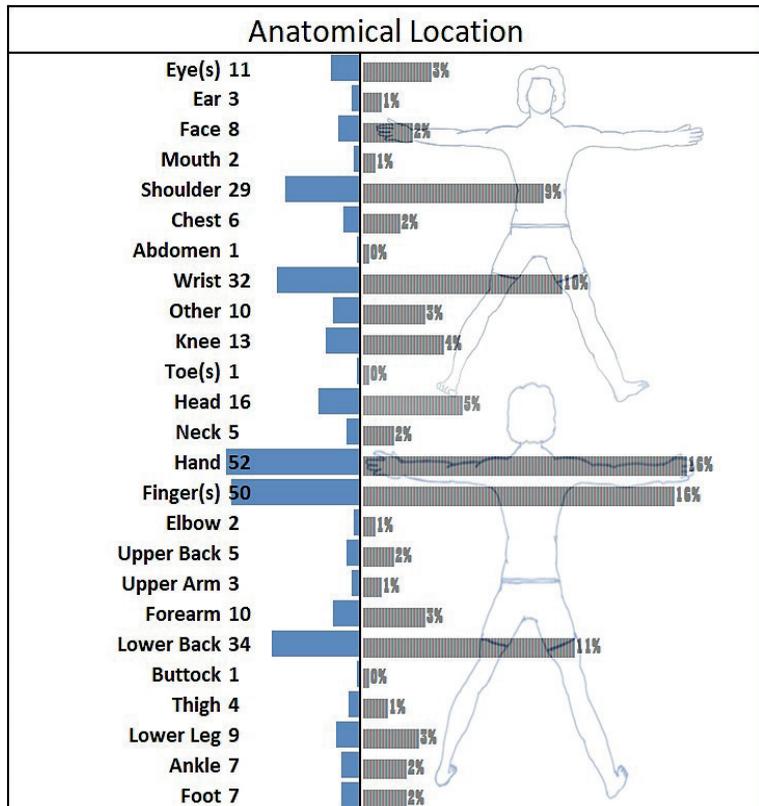
LOCATION OF INJURY

Location of injury was reported for the fourth year in the 2022 survey. The dominant locations of injury continue to be hand/wrists (26%) and fingers (16%), back and shoulder injuries accounted for (22%) of all incidents. These numbers remain steady throughout the 2022 survey and the surveys from previous years.

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.

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.



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.

Altogether, there have been **106** 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. Over the past two years, the mineral exploration industry has experienced five recorded fatalities, each stemming from distinct incidents. These include a helicopter crash, a drowning incident, a bulldozer incident on a poorly maintained ice road, a fatal occurrence during a drill rig move, and a fatality resulting from a side-by-side incident.

On Jan 17, 2022, one person died after falling through the ice in a dozer while working on a project in western Nunavut. This incident was under investigation at time of writing.

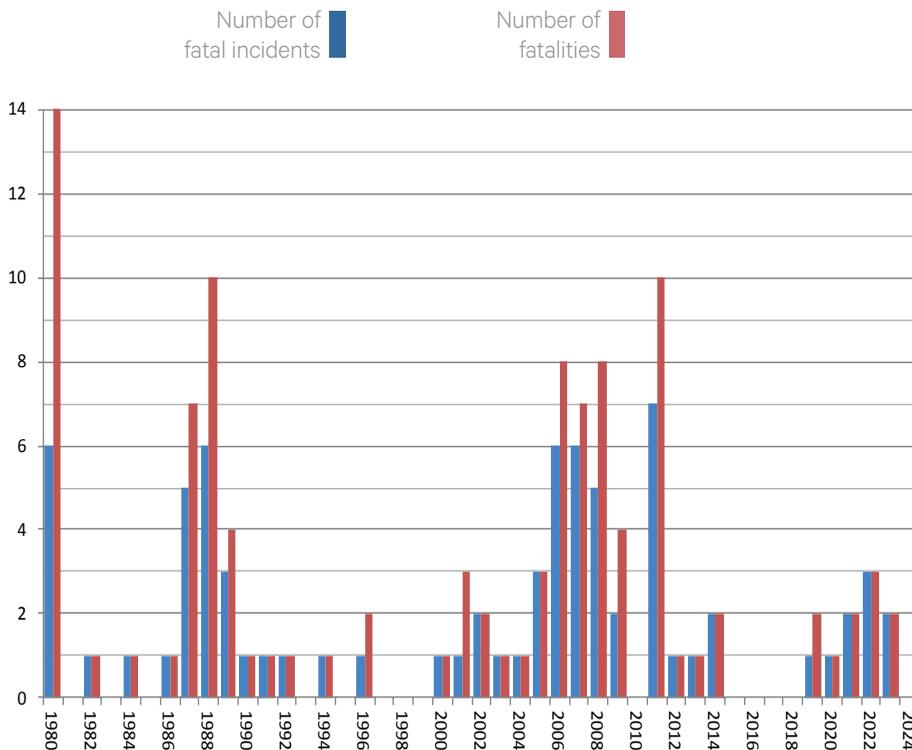
On Feb 8, 2022, a drilling contractor was driving a crawler carrier over to check existing drill holes on the property when he fell through a hole in the ice that measured approximately 2.5 metres by 2.5 metres. Subsequent investigation revealed the contractor fell into a sump. The mining company has been fined C\$390,000 in connection with this incident.

On Nov 9, 2022, during an aerial survey operation, a helicopter pilot suffered fatal injuries in a crash with the terrain along north coast of BC. This incident was under investigation at time of writing.

On Aug 21, 2023, a contractor was fatally injured while moving a drill on site in Ontario. The incident is under investigation at time of writing. Almost one week later, on Aug 29, 2023, a contractor working for an exploration company was driving an all-terrain vehicle (ATV) carrying two other men when it crashed off a curve on a mining access road. The incident happened on an exploration property north of Stewart, BC.

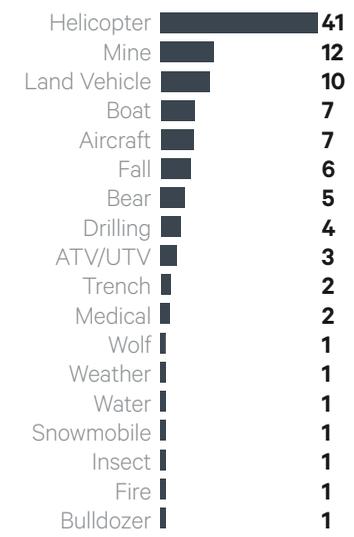
During extended downturns, companies can often lose experienced workers and then ramp up too quickly during subsequent exploration upswings. Historically, increased numbers and rates of fatalities and injuries have generally corresponded with peaks of activity in the industry. This trend appears intact, 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 1980-2023



PRIMARY CAUSE OF FATALITIES 1980-2023

Transportation-related incidents comprise of the primary causes of 75 fatalities (71%) since 1980 and have been related to all but three of the 21 fatalities (88%) 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, 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. PDAC has also developed infographics on respiratory hazards and noise-induced hearing loss. 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/>.

REPORTING

Complete the Canadian Mineral Exploration Environment, Health & Safety Survey at <https://explorationsurvey.ca>

OUR 2022 AWARD RECIPIENTS

There were **42** recipients of Safe Day Everyday Awards in 2022, down from 44 recipients of Safe Day Everyday Awards in 2021 due to lower participation of individual organizations in the survey.

SAFE DAY EVERYDAY GOLD AWARD

Boart Longyear receives the Safe Day Everyday Gold Award for the fourth consecutive year for having the highest number of hours without a lost-time incident. **Boart Longyear** receives the award for achieving 1,409,825 hours without lost time.

Probe Metals Inc. (now Probe Gold Inc.) receives the Safe Day Everyday Gold Award for achieving 174,774 hours without a reportable injury.

SAFE DAY EVERYDAY SILVER AWARD

13 organizations are presented with the Safe Day Everyday Silver Award for 2022. This award is presented to organizations reporting more than 10,000 hours throughout 2022 without a reportable injury.

Altius Resources Inc.	North Coal Ltd.
De Beers Group	Quebec Precious Metals Corporation
Eldorado Gold Québec	Scottie Resources Corp.
FPX Nickel Corp.	Teck Resources Limited
Hecla Québec	Vizsla Copper Corp.
IAMGOLD Exploration	
Inventus Mining Corp.	
Midland Exploration Inc.	

SAFE DAY EVERYDAY BRONZE AWARD

AME, PDAC and CDDA are pleased to award **27** companies with the Safe Day Everyday Bronze Award for reporting a year without a lost-time incident in 2022.

Amex Exploration	Lithos Geological Inc.	Skeena Resources Ltd.
Ascot Resources Ltd.	Major Drilling Group International Inc.	Tchaikazan Resources Inc.
Below BC Geological Association	Mountain Safety Works	Team Drilling
Coast Copper Corp.	New-Sense Geophysics Ltd.	TerraLogic Exploration Inc.
Copper Fox Metals Inc.	Northern Superior Resources Inc.	Watts, Griffis and McOuat Limited
Endurance Gold Corporation	Northwest Territories Geological Survey	Westhaven Gold Corp.
Finlay Minerals Ltd.	Orano Canada Inc.	
Foraco Canada Ltd.	Pacific Ridge Exploration Ltd.	
Geotech Drilling Services Ltd.	Rocky Mountain Drilling Inc.	
Hy-Tech Drilling Ltd.	Sego Resources Inc.	
Klondike Gold Corp.		

SAFE DAY EVERYDAY PARTICIPATION AWARD

Foraco Canada Ltd., and **Team Drilling** are recognized for participating in the Canadian Mineral Exploration Environment, Health & Safety Survey for ten consecutive years.

Previous recipients of the Participation Award who have continued to participate in the survey every year include:

- Altius Resources Inc. (15 years)
- De Beers Group (18 years)
- Hy-Tech Drilling Ltd. (16 years)
- Orano Canada Inc. (14 years)
- Rio Tinto Exploration (12 years)
- Teck Resources Limited (18 years)
- TerraLogic Exploration Inc. (18 years)
- Wallbridge Mining Company Limited (13 years)





Photo credits: Anatole Tuzlak (Cover), Arséniure DeGallium/Wikimedia Commons (p. 3), Gideon Pisanty/Wikimedia Commons (p. 3 inset), Kyle Terry (p. 11), Grant Spear (p. 12)

TOWARD A SAFE DAY EVERY DAY 2023: *Beyond the Toolbox Meeting*

AME

800-889 West Pender Street
Vancouver, BC V6C 3B2
Tel. 604.689.5271
amebc.ca
info@amebc.ca

PDAC

170 University Avenue, Suite 800
Toronto, ON M5H 3B3
Tel. 416.362.1969
pdac.ca
info@pdac.ca

CDDA

City Centre Building, Suite 205
101 Worthington Street East
North Bay, ON P1B 1G5
Tel. 705.476.6992
cdda.ca
office@cdda.ca