



2021

**Toward a Safe Day Every Day:
Resilience in the Face of COVID-19**

**Results from the 2020
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 16th annual Toward a Safe Day Every Day report with findings from the Canadian Mineral Exploration Environment, Health and Safety Survey. The 2020 survey had 69 contributing organizations, up from 67 in 2019, but down from the record of 117 in 2018. The number of hours decreased from 8.9 million hours to 5.9 million hours, partly attributed to a decreased spend in mineral exploration.

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 generally speaking, 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 2020 survey covers **5.9 million hours of work** – the equivalent of 3,000 full-time employees.

Following the confirmation of cases of novel coronavirus in BC and Ontario on January 28, 2020, some organizations began to take measures to prevent the spread of COVID-19. Following the declaration by the World Health Organization of COVID-19 as a pandemic on March 11, 2020, such a response was accelerated. In the short term, several projects were called off. However, by the summer mineral exploration had been declared an essential service in several jurisdictions. Companies, often in close collaboration with provincial, territorial and Indigenous governments and local communities, resumed exploration.

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 0.51 in 2020, essentially unchanged from 0.49 in 2019. We expect this to be the ninth consecutive year of the mineral exploration industry lost-time injury frequency rate being below the rate for all Canadian industries – most recently reported as 1.68 new claims per 100 covered workers in 2019 by the Association of Workers Compensation Boards of Canada.

Despite this safety record, five transportation-related fatalities in recent years – two in an airplane crash in 2019, one in a helicopter crash in 2020, one in a helicopter crash in 2021 and one in a UTV-related incident in 2021 – 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 reflect the number of incidents per 200,000 hours, or 100 worker years.*

DIGGING DEEPER INTO THE DATA

Rebecca Bond is a graduate student doing a master's degree in Human Kinetics at the Centre for Occupational Safety and Health at Laurentian University. Rebecca's thesis topic is focused on analyzing and understanding 15 years of AME/PDAC health and safety survey data.

Rebecca outlines her view of the work:

The rich information acquired from incident and near miss reporting has been well studied in high-risk industries. Such industries have used statistics to reveal trends to improve occupational health and safety. My thesis study aims to understand the specific nature of injury severity reports within Canada's mineral exploration field, to enhance existing occupational health and safety. The quantity and timespan of the data for this workforce enables a unique study. Determining factors that influence health and safety within mineral exploration are crucial to better understanding safety culture, safety consciousness and the specific needs of this field. The health and safety environment of mineral exploration is unique and multidimensional, and my study will lead to determining the factors that influence this.

The expected outcome for this project is twofold: firstly, highlight the health and safety trends in the industry and secondly, determine roots causes from common trends, areas of importance and critical issues, leading to actionable training suggestions to mitigate risk in the field for workers.

AME and PDAC along with industry partners look forward to seeing how Rebecca's thesis work can lead to suggestions that industry as a whole can adopt.



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. There was a slight drop in the percentage of companies reporting health and safety programs and policies – these were both reported at 96%, down from 100% and 99% respectively in 2019.

However, for the first time, all organizations reported discussions of safety at worker meetings (first reported at 56% in 2012, and up from 91% in 2019). Discussions at Board meetings were also far more prevalent – at 91% (up from 66% in 2012 and 72% in 2019). It is expected that the COVID-19 pandemic has resulted in increases to these numbers; however, AME, PDAC and CDDA hope that this focus on safety will continue to improve (one point for improvement though, is that safety is a standing agenda item at worker meetings for 78% and Board meetings for 59% of respondents).

The percentage of companies reporting always or sometimes having return-to-work policies decreased slightly – from 93% in 2019 to 86% in 2020. This change may be attributed more to a turnover in survey respondents during the COVID-19 pandemic to changes in individual corporate policies.

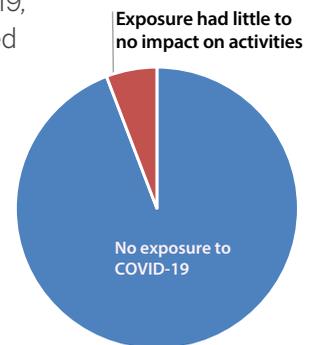
ENVIRONMENTAL REPORTING

The percentage of companies reporting having an environmental policy declined from 94% in 2019 to 87% in 2020. However, the percentage reporting an environmental management plan was steady – having declined only slightly from 82% in 2019 to 81% in 2020. 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 companies and companies contracting out their exploration work do not necessarily have these in place.

COVID-19 RESPONSE



Although COVID-19 initially resulted in programs being curtailed, cancelled or postponed, measures taken to prevent the spread of COVID-19 within exploration projects appear to have been generally effective; only 4 of 69 respondents reported exposure to COVID-19, and 30 cases resulted in 70 lost workdays. No organizations reported either a cessation or mineral exploration activities due to COVID-19.



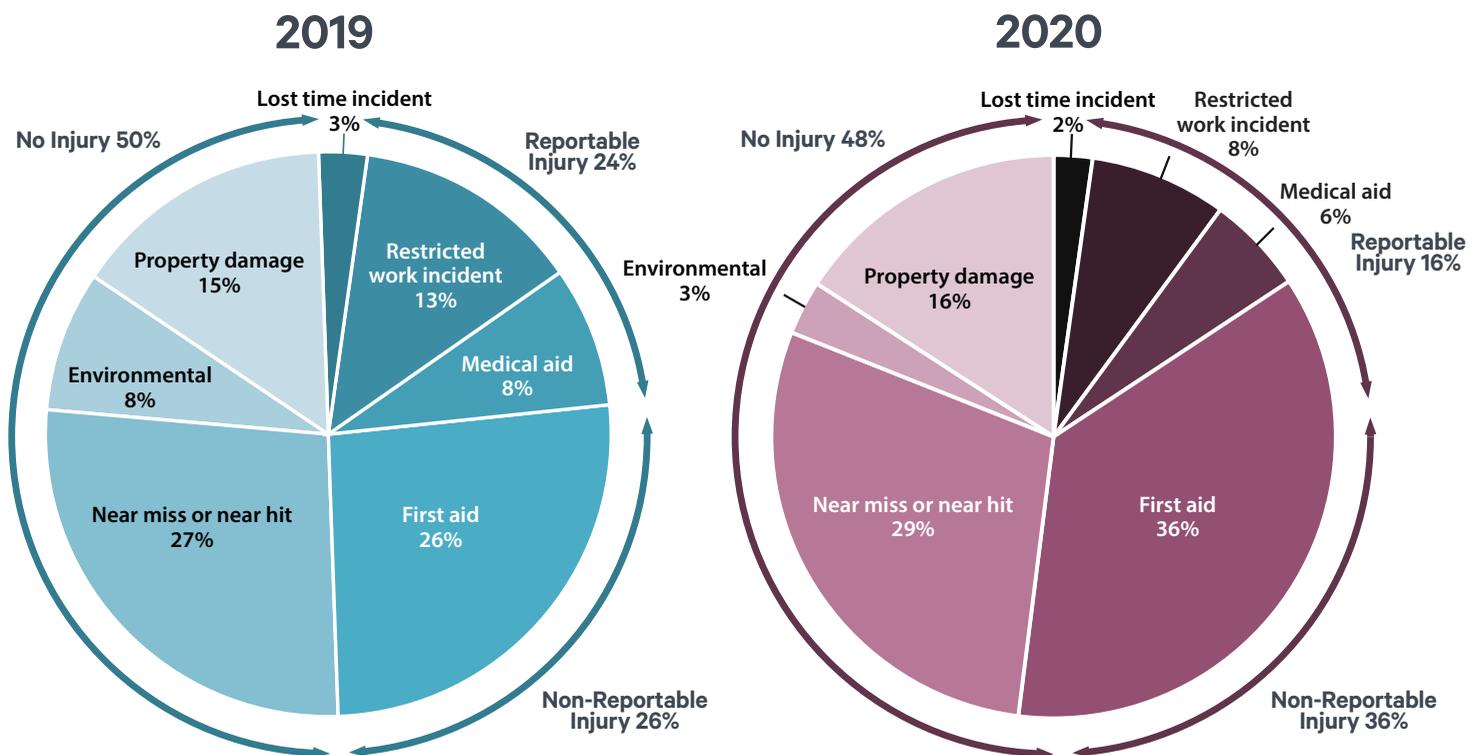
LAGGING INDICATORS

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 the environment.

Through the survey, 26 companies reported 675 incidents, compared to 33 companies reporting 650 incidents in 2019 – an unusually high number given that fewer hours were reported. Of these, 361 incidents (53%) resulted in injury, up from 326 incidents (50%) in 2019. Only 106 of these (16% of incidents, and 29% of injuries) resulted in the need for medical attention and/or a restricted work plan.

For the ninth 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 0.51, virtually unchanged from 0.49 in 2019, after declining from 0.61 in 2018. The frequency rate of reportable injuries continued to remain high, although continuing to decline to 3.52 in 2020 (down from 3.56 in 2019 and from 4.22 in 2018).

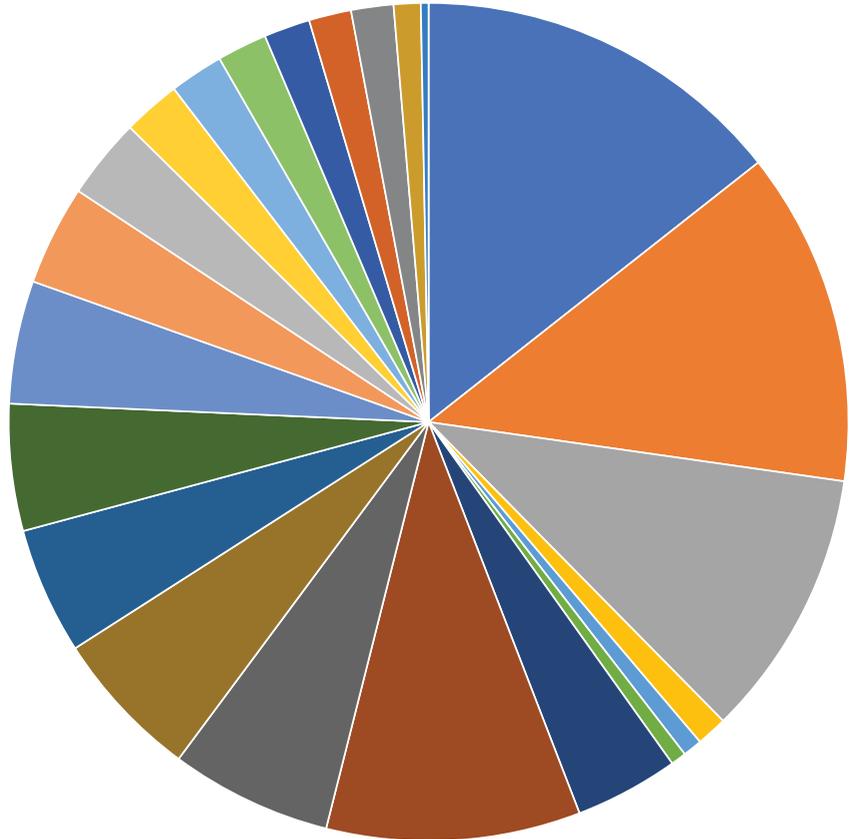
Classification of Incident



INCIDENT TYPE

Key themes in incident type include to be object, machinery and tool related (accounting 36% of all incidents), transportation (17%) and slips and falls (10%).

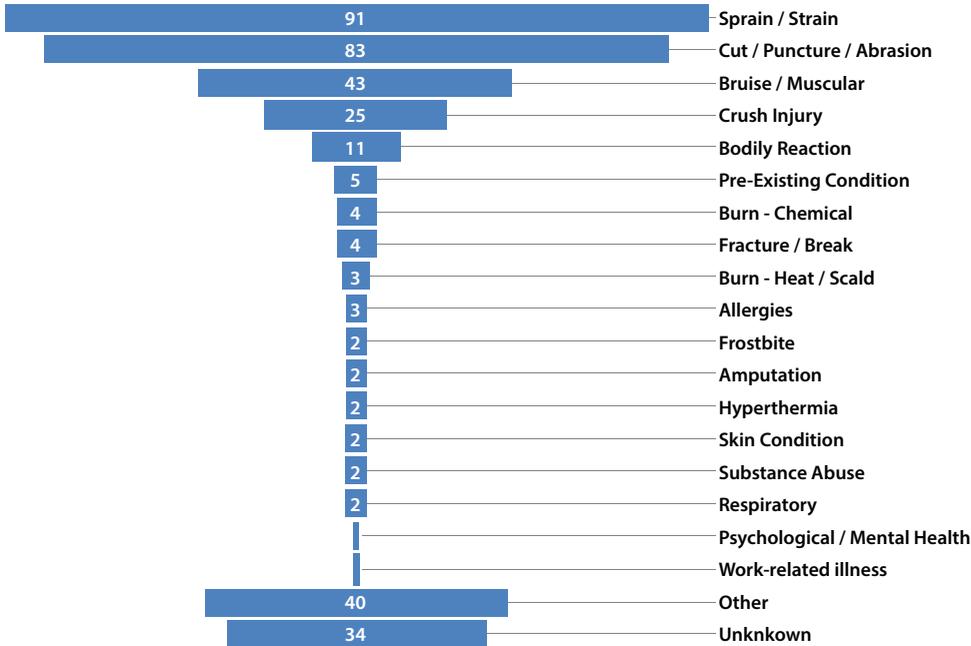
- 14% Other Object Related
- 13% Drilling Machinery Related
- 10% Motor Vehicle-Automobile
- 1% Motor Vehicle-ATV
- 1% Motor Vehicle-Helicopter
- 1% Motor Vehicle-Snowmobile
- 4% Motor Vehicle-Other
- 10% Slip/Fall
- 6% Repetitive Activity
- 6% Falling Object
- 5% Caught in/under/between
- 5% Improper Operation (e.g. did not follow procedures)
- 5% Preventable with PPE
- 4% Improper Lifting
- 3% Tool Use
- 2% Weather
- 2% Camp equipment related
- 2% Animal
- 2% Medical Condition
- 2% Field Work
- 2% Chemicals
- 1% Bodily fluid exposure / Splash
- 0.3% Harassment



- Key Takeaways:**
- 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.**

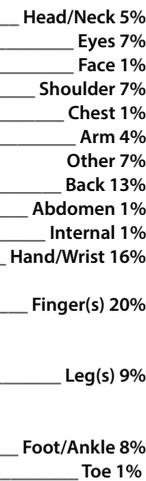
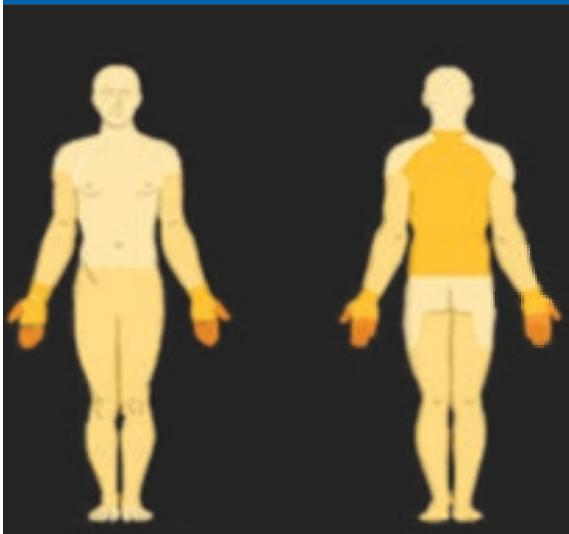
NATURE OF INJURY

Sprains or strains, cuts and bruises or muscular injuries continue to account for the majority of injuries. Sprains or strains accounted for 25% of injuries, compared to 19% in 2019; cuts, punctures and abrasions accounted for 23% (similar to 24% in 2019); and bruises and muscular injuries accounted for 12% of injuries (down from 29% - inconsistencies in reporting between 2019 and 2020 may account for much of this difference.)



LOCATION OF INJURY

Location of injury was reported for the second year in the 2020 survey. The dominant locations of injury continue to be fingers (20%) and hands/wrists (16%) followed by back (13%)



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.

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.

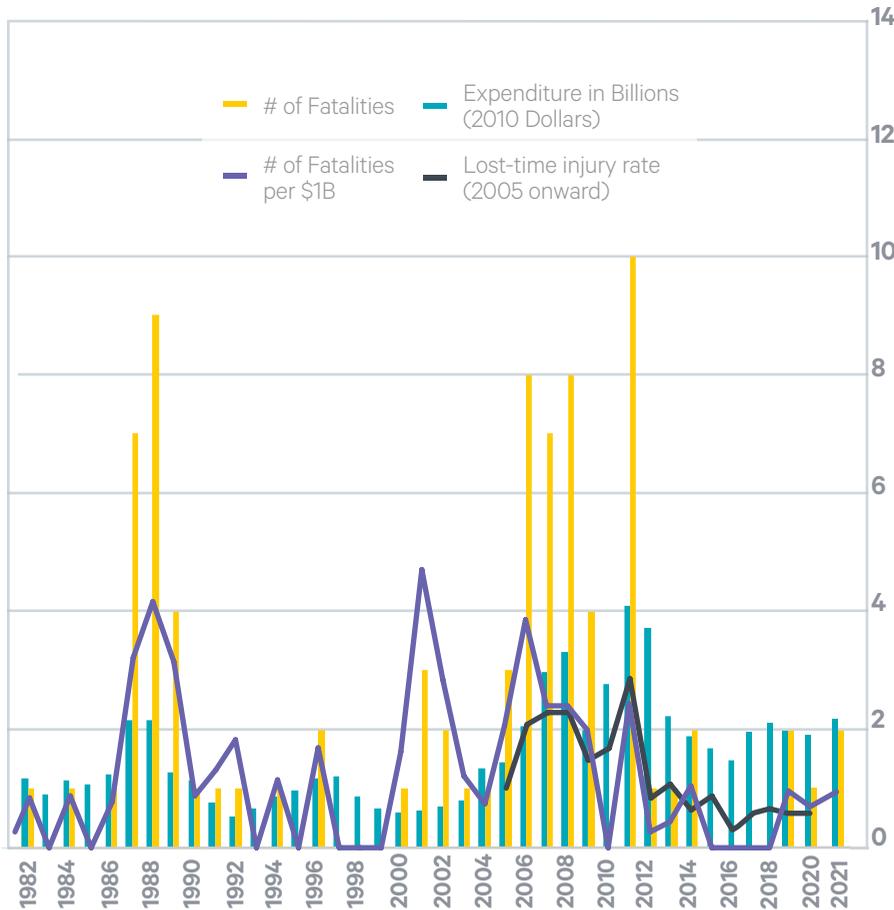
On August 17, 2020, a pilot was killed on a long lining program in northwest B.C. after the pilot set down a load due to incoming bad weather. The Transportation Safety Board of Canada has released a report on March 9, 2021. The report concluded with a message that VFR flight in reduced visibility conditions is hazardous and that it is important that pilots and air operators establish operational limits and procedures to maintain visual contact with the terrain at all times.

On September 14, 2021, a driller was killed when a helicopter rolled on the ground upon landing at a mineral exploration drill camp in Nunavut; this incident was under investigation at time of writing. Three weeks later, on October 5, the employee of a drilling contractor was killed in an incident involving a side-by-side utility task vehicle.

Altogether, there have been **101 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.

During extended downturns, companies can often lose experienced workers and then ramp up 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 1980-2021



PRIMARY CAUSE OF FATALITIES 1980-2021

Transportation-related of 70 fatalities (70%) since 1980, and have been related to all but one of the 18 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, MANUALS AND INFOGRAPHICS

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

Various resources including risk management, helicopter slinging and light vehicle presentations 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 2020 AWARD RECIPIENTS

There were **59** recipients of Safe Day Everyday Awards in 2020, up from 57 recipients of Safe Day Everyday Awards in 2019, although down from 94 recipients in 2018 due to lower participation in the survey over the past two years..

SAFE DAY EVERYDAY GOLD AWARD

Boart Longyear receives the Safe Day Everyday Gold Award for the second consecutive year for having the highest number of hours without a lost-time incident. **Boart Longyear** receives the award for achieving 1,121,670 hours without lost time.

Rio Tinto Exploration Canada Inc. receives the Safe Day Everyday Gold Award for achieving 317,400 hours without a reportable injury.

SAFE DAY EVERYDAY SILVER AWARD

31 organizations are presented with the Safe Day Everyday Silver Award for 2020. This award is presented to organizations reporting more than 10,000 hours throughout 2020 without a reportable injury.

- | | | |
|----------------------------------|--|-----------------------------------|
| Aggressive Drilling Ltd. | IAMGOLD Exploration | Red Pine Exploration |
| Altius Minerals Corporation | Imperial Metals Corporation | Roughrider Exploration Limited |
| Benton Resources Inc. | Libero Copper & Gold | Sabina Gold & Silver Corp. |
| De Beers Group | New Brunswick Department of Natural Resources and Energy Development | Saskatchewan Geological Survey |
| DGI Geoscience Inc. | North Coal Limited | Sego Resources Inc. |
| Eldorado Gold Québec | Omineca Mining & Metals | Sirios Resources Inc. |
| Eskay Mining Corp. | Ontario Geological Survey | Teck Resources Limited |
| Forum Energy Metals | Orano Canada Inc. | Wallbridge Mining Company Limited |
| Fury Gold Mines | Purepoint Uranium Group Inc. | Yukon Geological Survey |
| Glencore Canada Corporation-Zinc | Quebec Precious Metals Corporation | |
| Hecla Québec | | |
| Hudbay | | |

SAFE DAY EVERYDAY BRONZE AWARD

AME, PDAC and CDDA are pleased to award **26** companies with the Safe Day Everyday Bronze Award for reporting a year without a lost-time incident in 2020.

Aben Resources	Major Drilling	Probe Metals
Agnico Eagle Mines Limited	Midland Exploration Inc.	Rambler Metals & Mining
Auracle Geospatial Science Inc.	Noront Resources Ltd.	Romios Gold Resources Inc.
Avalon Advanced Materials Inc.	North Arrow Minerals Inc.	Surge Copper Corp.
Centerra Gold Inc.	Northwest Territories Geological Survey	Taranis Resources Inc.
Endurance Gold Corporation	Orestone Mining Corp.	Tchaikazan Resources Inc.
Foraco Canada	P2 Gold Inc.	Team Drilling
Happy Creek Minerals	Pacific Empire Minerals Corp.	Westhaven Gold Corp.
Inventus Mining Corp.	Pacific Ridge Exploration	
Lithos Geological Inc.		

SAFE DAY EVERYDAY PARTICIPATION AWARD

Rio Tinto Exploration Canada Inc. receives the Safe Day Everyday Participation Award for having contributed to the survey for 10 consecutive years.

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

Altius Minerals Corporation (13 years)
Avalon Advanced Materials Inc. (15 years)
Benton Resources Inc. (13 years)
De Beers Group (16 years)
Hy-Tech Drilling Ltd. (14 years)
Orano Canada Inc. (12 years)
Teck Resources Limited (16 years)
TerraLogic Exploration Inc. (16 years)
Wallbridge Mining Company Limited (12 years)





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TOWARD A SAFE DAY EVERY DAY 2021: *Resilience in the Face of COVID-19*
is jointly produced by the Association for Mineral Exploration, Prospectors &
Developers Association of Canada and Canadian Diamond Drilling Association.

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