CANADIAN MINERAL EXPLORATION HEALTH & SAFETY

Annual Report 2011/2012

PDAC

AMEBC

Association for Mineral Exploration British Columbia

Health & Safety Policy Guidelines for Junior Mineral Exploration Companies

These guidelines are designed to assist boards of junior exploration companies in setting up effective health and safety policies and protocols within the company. The guidelines are not standards and are not exhaustive. AME BC and PDAC have set the targets of zero fatalities and lowered lost time accidents for the exploration industry. Companies that have health and safety programs are more likely to help industry achieve those targets.

1. DUTIES OF BOARD OF DIRECTORS

- The Board of Directors should ensure that a health and safety program is in place.
- It may be preferable to appoint one director who will monitor and report to the Board on health and safety implementation.
- Alternatively the company could strike a health and safety committee of the Board.
- The Chairman of the Board should initiate education for all Directors as to their responsibilities and liabilities with respect to health and safety in the workplace. This would include all of the following:
  - Understanding of federal Bill C-45, which contains Amendments to the Criminal Code affecting the criminal liability of organizations
  - Understanding of regulations for the area(s) in which the company operates, and those specific to mineral exploration and mining
  - Understanding of the policies of appropriate professional associations with respect to health and safety in the workplace
  - Training on response to serious accident at worksite, including emergency response, but also response to media questions
- The Directors of the company should have a high level understanding of the health and safety risks in company workplaces.
- The Board should be notified as soon as possible on all serious accidents in the workplace (medical aids, lost time injuries, fatalities).
- The Board should allot resources towards health and safety program in the company.
- The Board should ensure that the organization has a Health and Safety mission statement, policy, and plan that implements health and safety protocols and checks periodically that they are appropriate. There should be health and safety targets within the plan.
- The policy should be signed at least by the chairman and preferably the whole Board.
- Any mission statement or policy could be incorporated within a general corporate mission statement and/or policy with respect to sustainable development.
- Consider an external review of health and safety policies and procedures.
- Make sure all work places, irrespective of jurisdiction, have the same levels of health and safety standards.

2. REPORTING

- Board meetings should include a report on health and safety performance prior to technical reviews.
- The Board of Directors, the director, or committee appointed to monitor health and safety procedures, should review with the COO or equivalent the records of statistics.
- Statistics should include hours worked, near misses, first aids, medical aids as well as workdays lost, and fatalities.
- Statistics should be maintained with monthly or quarterly reports.
- Accident records should be detailed and signed. Actions taken subsequent to accidents should be recorded.
- The annual report of the company, any interim reports (quarterly reports) and the website should include a summary of health and safety performance, along with the health and safety policy statement.
- In case of serious accident, if the company does not have the capacity to investigate the causes itself, external auditing should be completed.
- Operating groups or project teams should be encouraged to have safety meetings as follows:
  - Prior to project reports;
  - Once a month; ***and***
  - Short “Toolbox” or “tailgate” meetings each day at the worksite.

  Minutes should be kept for safety meetings.
- Documentation should exist at three levels – office, management and field.

3. TRAINING

- Train the Board in field health and safety risks and procedures (as well as social, community and environment).
- Put a training plan in place to ensure that all workers have appropriate training for the tasks to be completed.
- Have safety leadership training as well as task specific training.
- Do not allow work to start without training.
- Have workers sign that they have received training and safety manuals. Insist on signatures that manuals have been read.
- All workplaces must comply with federal and provincial regulations with respect to health and safety.

4. DUE DILIGENCE CHECKLIST

Questions the Board of Directors should ask the Chief Operating Officer, Vice President-Exploration, or equivalent.

- ☐ Do you have a corporate health and safety policy?
- ☐ Do you have a corporate health and safety plan?
- ☐ Does the Board understand its responsibilities and liabilities?
- ☐ Does the Board have appropriate insurance in place?
- ☐ Does the Board request a health and safety report from the COO or equivalent prior to other discussions?
- ☐ Does the Board of Directors annually audit the plan with the COO or equivalent?
- ☐ Is the audit documented in writing, signed and dated?
- ☐ Does the Board audit the plan in addition to the annual audit in cases of serious accident?
- ☐ Do all projects have a designated health and safety leader, manager or monitor (not necessarily a job title)? Is the person told to shut down work if it is unacceptably unsafe?
- ☐ Does the designated health and safety leader know who to report to in case of accident?
- ☐ Do all worksites (camps, drills, etc) and regional offices have a valid, tested emergency response plan?
- ☐ Does the response plan include immediate 24/7 communication with COO or equivalent?
- ☐ Are all contractors required to include health and safety to at least the company standards in contracts?
- ☐ Before work starts, has there been an assessment and documentation of the health and safety risks?
- ☐ Are workers inducted for health and safety prior to starting work and supplied with necessary personal protective equipment?
- ☐ Are all employees given the appropriate training for the tasks required?
- ☐ Who documents training, including names, dates and course topics?
- ☐ Are training records kept?
- ☐ Are employees and contractors given an appropriate health and safety manual?
- ☐ Do employees sign that they have read the manual?
- ☐ Is there auditing of the contractor's worksite and action taken if required?
- ☐ Are health and safety statistics kept?
- ☐ Are the statistics publicly released (minimum: annual report)?

Health & Safety Guiding Principles

The Association for Mineral Exploration British Columbia (AME BC) recognizes that health and safety are fundamental cornerstones of the mineral exploration and mining sector. In pursuit of preventing incidents among its members, AME BC encourages the promotion of sound and responsible business practices to ensure everyone's right to a healthy and safe workplace.

In conducting their activities, AME BC members should strive to:

1. Communicate these guiding principles about health and safety to our members, communities of interest, aboriginal peoples, relevant regulatory agencies and international stakeholders.
2. Manage their activities to ensure accountability and compliance with applicable permits, laws and regulations. In the absence of regulation, best management practices will be applied to reduce health and safety risks.
3. Implement health and safety codes of practice, policies, programs, guidelines and procedures established jointly by industry and government to ensure identification of health and safety risks and the implementation of reasonable mitigation, monitoring, emergency planning, transparent auditing and reporting.
4. Identify and manage health and safety hazards and risks during all phases of the mineral exploration and mining cycle and will actively encourage all employees to consider their own safety as well as the safety of others.
5. Allocate the appropriate resources to meet health and safety goals and will support and conduct appropriate research to improve health and safety performance.
6. Actively investigate health and safety incidents to ensure that the rights of the employer and the rights of the employee are upheld in the pursuit of zero incidents occurring in the workplace.
7. Continuously seek opportunities to improve health and safety performance through adherence to these principles and will regularly report progress to other members, communities of interest, aboriginal peoples, relevant regulatory agencies and international stakeholders.
8. Support the joint AME BC-PDAC Canadian Mineral Exploration Health and Safety Award program to recognize commitment, innovation and leadership in the industry.

"Have a safe day, everyday."

Approved by the Board of Directors, Association for Mineral Exploration British Columbia, June 16, 2009

Robert Stevens, Chairman

Gavin C. Dirom, President & CEO

Canadian Mineral Exploration Health & Safety Annual Report 2011/2012

Message from the AME BC and PDAC Health & Safety Committees

January 2013

The Association for Mineral Exploration British Columbia (AME BC) and the Prospectors & Developers Association of Canada (PDAC) are pleased to present the seventh *Canadian Mineral Exploration Health & Safety Annual Report*.

The objectives of the report are to track health and safety trends and lay the foundation for increasing health and safety awareness and improving standards of practice in the mineral exploration industry.

This report follows a fatality-free year in 2010, ten fatalities in 2011, and – to our knowledge – one fatality in 2012. As in previous years, AME BC and the PDAC have also documented incidents in 2011 that we hope will serve as lessons learned for the industry.

AME BC and the PDAC encourage all companies to work toward a zero-harm culture of safety in the mineral exploration industry. We recognize that lessons learned are only a component of building a culture of safety, and for 2012 we have accordingly changed our safety survey to equally incorporate both proactive measures (leading indicators) that organizations take as well more traditional incident reporting (lagging indicators). Throughout 2013, the two associations will continue to review the national health and safety reporting and awards program.

In the meantime, we encourage all companies active in mineral exploration in Canada to participate in the 2012 Canadian Mineral Exploration Health & Safety Survey. A copy of the survey is included in this report and is also available online.

We thank participants for their support and hope that you find the report of interest and value. If you have any suggestions for improvement of future reports please contact Jonathan Buchanan, Director, Communications & Public Affairs, at AME BC, at 604.630.3923 or jbuchanan@amebc.ca.

Bill Mercer
Chair
Health & Safety Committee
Prospectors & Developers Association of Canada

Matthew Pickard
Chair
Health & Safety Committee
Association for Mineral Exploration British Columbia

Acknowledgements

Survey Participants

We thank the following companies for reporting on their 2011 safety performance in the Canadian Mineral Exploration Health & Safety Survey. We also thank those who answered the questionnaire regarding safety programs; their names are on pages 26 and 27.

Agnico-Eagle Mines Limited
Alexco Resources
Altius Resources Inc.
AM Gold Inc.
Amarc Resources Ltd.
Anglo American Exploration (Canada) Ltd.
AREVA Resources Canada Inc.
Astral Mining Corporation
AuRico Gold
Aurizon Mines Limited
Aurora Energy Ltd.
Avalon Rare Metals Inc.
Aztec Geoscience Inc.
Bear Lake Gold Ltd
BHP Billiton Canada Inc.
Boart Longyear
Buchans Minerals Corporation
Callinex Mines Inc.
Canada Zinc Metals Corp.
Canadian Royalties Inc.
CanAlaska Uranium Ltd.
Capstone Mining Corporation
Castle Resources Inc
Copper Fox Metals Inc.
Cornerstone Resources Inc.
Crosshair Energy
Dajin Resources Corp.
De Beers Canada Inc. - Exploration Division
Denison Mines Corp.
Durfeld Geological Management
Eagle Hill Exploration Corporation
Endurance Gold Corp
Equity Exploration Consultants Ltd.
FB Drilling
Fjordland Exploration Inc.
Fladgate Exploration Consulting Corporation
Gossan Resources Limited
Hard Creek Nickel Corporation
Huakan International Mining Inc.
Huldra Silver Inc.
Hy-Tech Drilling Ltd
IAMGOLD Corporation
Imperial Metals Corporation
KGHM International Ltd.
Kiska Metals Corp
Kria Resources Inc.
Kutcho Copper Corp
Lakehead Helicopters Inc.
Largo Resources Ltd.
Laurion Mineral Exploration Inc.
Ministère des ressources naturelles et de la Faune - Québec
Minto Explorations Ltd.
New Gold Inc.
New Millennium Iron Corp.
Newfoundland and Labrador Geological Survey
North American Tungsten
Northern Gold Mining Inc.
Northern Tiger Resources
Ontario Geological Survey
Paragon Minerals Corporation
Pilot Gold Inc.
Pitchstone Exploration Ltd.
Prodigy Gold Inc.
Queenston Mining Inc.
Quinlan Prospecting Inc.
Rainbow Resources Inc.
Rio Tinto Exploration Canada Inc.
Romios Gold Resources, Inc.
Royal Nickel Corporation
Shell Canada Energy
SLAM Exploration Ltd.
Talmora Diamond Inc.
Teck Resources Limited
TerraLogic Exploration Inc
Terranotes Ltd
Tri Origin Exploration
United Reef Limited
Vale Exploration Canada
Votorantim Metals Canada Inc.
Wallbridge Mining Company Limited
Western Copper and Gold Corporation
Wildcat Exploration Ltd
Xstrata Copper
Yukon Zinc Corporation

2011 in Review

Overall Results

The 82 companies reporting on their 2011 safety performance reported 4,119,522 hours of activity from, down from 5,769,457 hours of activity reported by 81 companies in 2010 but up from 3,536,796 hours reported by 113 companies in 2009. Despite the lower reporting of hours, there was an increase in the number of reported incidents with lost workdays – from 48 in 2010 to 59 in 2011 (see Figure 1). The incident rate accordingly has risen from 1.5 in 2009 to 1.7 in 2010 to 2.9 in 2011. Although a caveat of the survey is that it covers approximately 20% of all exploration activity in Canada, the high incident rate also corresponds with a high number of fatalities in 2011 – most of which were not reported in the survey (see page 23 for a listing of fatalities in 2011).

The two most severe incidents reported in the survey both resulted in their respective programs being stopped so that companies could re-evaluate their methods in put best practices in place; the message is that all incidents provide opportunities for learning. In February, an equipment operator died when a bulldozer fell through ice on a Saskatchewan exploration program; the program was shut down and new procedures were put in place incorporating the Alberta Best Practice for Building and Working Safely on Ice Covers in Alberta (see http://www.humanservices.alberta.ca/elearning/icesafety/). In October, a driller injured an arm and lost two fingers when he got entangled in a line spool. All drills on the program were shut down until guarded; standard operating procedures revamped; and training and competency verification programs were implemented.

Recommendations

Overall, the survey shows that although some incidents are specific to a particular line of work, such as drilling or transportation, most can occur in a variety of environments. Slips and falls are routinely the leading cause of incidents. Bruises and muscular injuries are the leading nature of incidents, followed by cuts and back injuries.

The leading preventive measures to safeguard against these incidents can be summarized as follows:

1) Check that proper equipment and procedures are in place, are functioning properly, are used in ***all*** operations, and that procedures are understood by all personnel;
2) Check that employees use appropriate personal protective equipment (PPE) and caution in all situations;
3) Eliminate unnecessary driving or use extreme caution while driving in hazardous conditions;
4) Use extra caution in slippery environments, particularly over logs and in steep terrain;
5) Do not lift or carry heavy objects without assistance;
6) Use ergonomic lifting techniques; ***and***
7) Do not rush any aspect of a program. Train employees fully in all of their duties.

It is also important to note that employers are legally responsible to ensure that all employees and contractors:

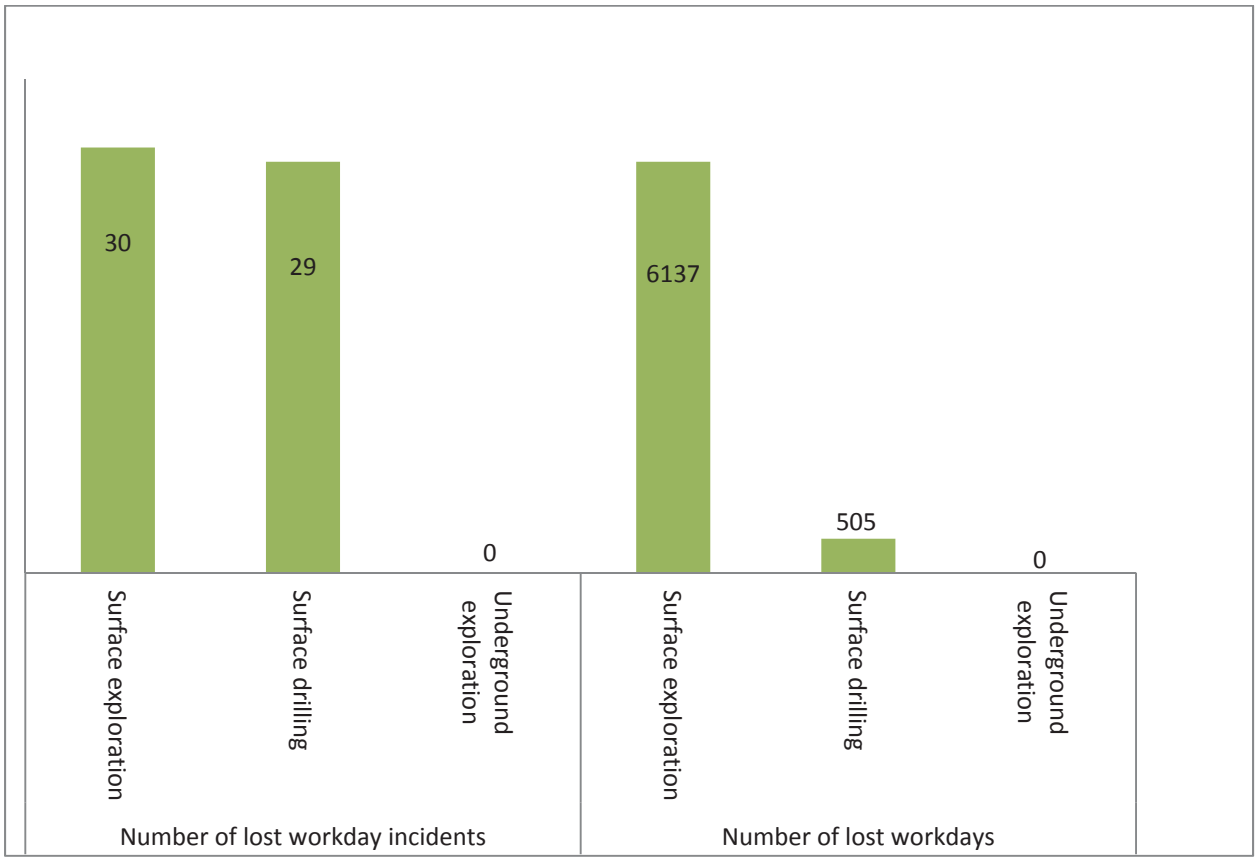
- have safety programs in place;
- provide personal protective and safety equipment;
- adequately train and supervise personnel; *and*
- ensure employees and contractors follow safe work guidelines.

Employers are criminally liable under the *Criminal Code of Canada* for criminal acts or negligence in the workplace. For further information, visit the Bill C-45 page of the Canadian Centre for Occupational Health and Safety website at www.ccohs.ca/oshanswers/legisl/billc45.html .

Standardized drilling training such as the Ontario Common Core Training surface drilling training can improve the safety of drilling programs. The Canadian Diamond Drilling Association launched the Drilling Excellence Certification initiative in 2012 to certify companies that have a health and safety, environmental and quality management system. Visit www.cdda.ca for details on both initiatives.

Finally, incidents without lost workdays provide opportunities for companies to develop and improve their health and safety programs.

Figure 1: Mineral Exploration Safety Statistics Summary 2011



Surface Exploration and Geological Work: A Summary

There were 30 lost workday incidents reported through the survey in 2011, up from 23 lost workday incidents reported in 2010, 11 lost workday incidents in 2009, and 23 lost workday incidents in 2008. There were 6137 lost workdays reported in the survey, compared to 514 lost workdays in 2010. One fatality reported through the survey accounted for 6000 days; the 29 other incidents accounted for 137 lost workdays. There were only four incidents with 14 or more lost workdays. Full details of incidents with lost workdays are covered in Table 1.

Surface Drilling: A Summary

There were 29 lost workday incidents reported through the survey in 2011, up from 21 lost workday incidents reported in 2010, 15 lost workday incidents in 2009, and 21 lost workday incidents in 2008. There were also more lost workdays reported – 505 in 2011 compared to 369 in 2010 and 398 in 2009. Nearly half of the incidents, thirteen, involved 14 days or more lost time. Full details of incidents with lost workdays are covered in Table 2.

Underground Exploration: A Summary

There were no lost workday incidents reported through the survey, a first since surface drilling and underground work were separated in 2007.

Table 1: Lost Workday Incidents in Surface Exploration and Geological Work 2011 Summary Report

Date	Prov./Terr	Occupation	Type	No. of Lost Workdays	Nature of Injury	Cause	Description	Action Taken
Feb	SK	Equipment Operator	MA	6000	Fatality	Improper Operation	Bulldozer operator went through the ice as he was clearing a drill pad. He had little on-ice experience and he was unsupervised at the time.	The remaining 2011 drill program was shut down. Company reviewed its practices and policies for working on ice and the contracting of others for working on ice. It is now mandatory for everyone working in a company winter camp to review an Alberta government informational website concerning working on ice covers. There are also new policies on the required rescue equipment and procedures for working on ice.
Aug	ON	Field Assistant	MA	29	Bruise/ Muscular	Field Work	Worker reported a sore knee, when returned to work on Monday AM; worker had noticed it over the weekend. Completed modified work for over a week.	Saw a doctor when it didn't improve after modified work. Likely resulted from repetitive motion over a period of time. Physiotherapy.
Dec	NT	Other	MA	14	Bruise/ Muscular	Improper Lifting	Worker sprained arm when lifting fuel drums. Pre-existing injury.	Flew out for medical check and X-ray. Nothing was broken, and injury healed on its own.
Aug	BC	Other	MA	14	Bruise/ Muscular	Improper Lifting	Repetitive-strain type injury due to improper work habits and potentially related to a previous, off-site incident that was not reported.	Time off for healing.

Jul	NU	Field Assistant	MA	10	Bruise/ Muscular	Slip/Fall	Field assistant was wearing improper footwear in field and slipped on wet surface resulting in bruised ribs and abrasion to shin.	Worker was once again reminded about the requirement of proper footwear. Injury occurred almost at end of project; worker did not return to work.
Jul	NT	Geologist	FA	10	Sprain	Slip/Fall	Geologist walking downhill slipped and wrenched his back. He required some time off to recover.	First aid and time off.
May	NU	Field Assistant	FA	9	Back	Improper Lifting	Back strain after lifting core boxes.	
Jul	NT	Geophysicist	FA	8	Skin	Slip/Fall	Slip on tundra and cut knee on a rock. Fatigue and footwear may have been contributing factors. The worker was wearing rubber boots as opposed to hiking boots.	As the cut required stitched the person had to leave camp. Adequate rest for other contractors and proper footwear was discussed with contractor.
Jun	NT	Cook	MA	7	Bruise/ Muscular	Slip/Fall	Cook slipped outside, twisting hip and hitting head.	Flown to city to check for torn ligaments. No serious injuries. More emphasis on remediating slippery areas around the camp was given.
Jan	SK	Geophysicist	MA	3	Pre-Existing Condition	Medical Condition	Person began experiencing pain around tailbone and a painful lump developed. He went to seek medical advice.	He was sent for medical advice. As he was crew chief, the entire crew left camp as well.
Feb	QC	Geophysicist	FA	3	Frostbite	Weather	Frostbite on toe.	Saw nurse and doctor; held safety meeting.
Jun	ON	Line Cutter	FA	3	Sprain	Tool Use	Tool was not properly fixed.	Sent to first aid to examine.
Jun	ON	Other	MA	3	Back	Improper Lifting	Worker injured back lifting piece of wood of ground in core storage area.	Worker sought medical aid. Worker placed on modified duty when given medical clearance to do so. Reinforce proper lifting techniques.
Jun	BC	Pad builder	MA	3	Other	Field Work	Worker experienced altitude sickness.	Flown by helicopter to hospital for medical attention; approximately 45 min flight.
Jul	BC	Field Assistant	FA	3	Bruise/ Muscular	Field Work	Rotator cuff re-aggravation of old injury.	Rest.

Mar	SK	Field Assistant	MA	2	Bruise/ Muscular	Improper Lifting	Worker strained his shoulder as he assisted in the loading of a drum of fuel into a pickup.	The next day, his shoulder was sore and he was taken to a nursing station and checked out. Reduced duty for a few days.
Mar	QC	Other	MA	2	Back	Improper Lifting	A warehouse technician manipulating core boxes directly on the ground felt pain in his back. As the pain did not subside the technician sought medical advice. He was diagnosed with a back strain and prescribed two days off followed by light duty. The cause is the lack of a load lifting procedure.	The incident was discussed at our safety meeting where we reminded staff to take time to plan the job and do not go too fast. In addition, the recommended lifting procedures were reviewed, including the use of a back support belt. Plans were made for training on load lifting.
Apr	NU	Other	FA	2	Back	Improper Lifting	Pain after pulling wire.	
Aug	NT	Other	MA	2	Back	Improper Lifting	Worker aggravated a previous back injury conducting repetitive, light-duty, lifting an outboard motor in the field.	An investigation is being conducted to look into why an employee with a past back injury was allowed to conduct repetitive lifting related tasks. More diligence is required when selecting individuals for field work assignments, and more comprehensive medical assessments will be done.
Sep	BC	Other	FA	2	Bruise/ Muscular	Falling Objects	Worker injured his back jumping out of the way of a shifting and falling load of drill rods.	Time off for healing.
Apr	SK	Camp Manager	MA	1	Pre-existing Condition	Medical Condition	Camp manager reported to work but was not feeling well. Went to the hospital the following day and was being treated for an infection.	He got the medical care he needed.
Jun	QC	Field Assistant	MA	1	Sprain	Other	Sprained ankle.	Visit to clinic; held safety meeting.
Feb	QC	Field Assistant	FA	1	Bruise/ Muscular	ATV	Fell off ATV and hurt knee.	Applied ice.
Jun	QC	Field Assistant	FA	1	Bruise/ Muscular	ATV	Fell off ATV and hurt leg and foot.	Cold compress applied.

Sep	ON	Field Assistant	MA	1	Sprain	Slip/Fall	Assistant slid down moss-covered rock and twisted ankle.	First aid on site, and then transferred to emergency department of hospital.
Jun	NU	Other	FA	1	Sprain	Slip/Fall	Janitor fell when moving equipment.	
Mar	NU	Other	FA	1	Bruise/ Muscular	Improper Lifting	Crushed finger between two propane containers.	
May	NU	Other	FA	1	Bruise/ Muscular	Slip/Fall	Slip and fall on ice.	
Aug	BC	Other	FA	1	Skeletal	Falling Object	Worker hit on head with sawhorse when it fell off back of pick-up parked on steep incline.	Patient seemed disoriented; had nausea and vertigo. Patient was driven to nursing station with possible concussion.
Jul	BC	Geologist	MA	1	Eye	Field Work	Geologist got something in her eye and scratched the cornea; had difficulty seeing and eye began to swell.	Flown by helicopter to hospital for medical attention, approximately 45 min flight.

Table 2: Lost Workday Incidents in Surface Drilling 2011 Summary Report

Date	Prov./Terr	Occupation	Type	No. of Lost Workdays	Nature of Injury	Cause	Description	Action Taken
Oct	YT	Driller Helper	FA	135	Cut	Drilling Machinery Related	Worker injured arm and lost two fingers when he got entangled in a line spool.	All rotating objects to be guarded; all drills shut down until guarded; multiple safety talks - continued; education regarding Code 1 emergency procedures; standard operating procedures revamped; training and competency verification programs.

Sep	BC	Driller	MA	46	Internal	Other	Driller dropped his hard hat under the wooden rack that holds the rods on a fly job; when he went to get up he hit his head on a timber. He suffered a severe concussion.	It was discussed at the joint health and safety committee.
Jun	NT	Driller Helper	MA	44	Skeletal	Drilling Machinery Related	While inserting the first piece of casing the driller pulled the wrong lever causing the ten-foot drive rod to fall and crush the helpers finger between the drive rod and casing. Helper lost the top of his index finger.	Hazard alert; changed procedure; changed drive rod.
Mar	NT	Driller Helper	MA	40	Bruise/ Muscular	Tool Use	While using wrench to hook up sloop worker got finger caught between clevis and hitch when wrench slipped.	On light duty at contractor facility.
Sep	NT	Driller Helper	MA	28	Bruise/ Muscular	Drilling Machinery Related	Helper was hit in back of neck by wrench when driller spun rods and helper was standing nearby.	Drills stopped and safe work procedures reviewed. Corporate H&S officer visited. Drills started again after two days.
Sep	BC	Driller Helper	MA	28	Bruise/ Muscular	Improper Lifting	Helper dislocated his shoulder while standing up a 6 m inner tube.	Reviewed procedure. Adjusted pack weights to better suit individual workers.
Jul	BC	Driller Helper	MA	21	Bruise/ Muscular	Improper Lifting	Repetitive strain injury from lifting drill rod.	Time off for healing. Modified duty. Shortened shift length and had operational review with supervisors.

Apr	BC	Driller Helper	MA	20	Bruise/ Muscular	Drilling Machinery Related	The helper was lowering in the first piece of casing through the footclamp when the driller pulled the wrong lever causing the drive rod to fall on the helper's hand. Helper thought driller was outside - there was poor communication.	Hazard alert. Changed procedure to state that the drive rod be inserted into the head only after the casing is in the foot clamp. Also built 3-foot drive rods with an oversized sub so that the drive rod is unable to fall greater than a foot.
Aug	QC	Driller Helper	MA	16	Sprain	Field Work	Worker twisted right foot walking on muck with a core box.	Safety meeting on "watch where you walk".
Sep	YT	Other	MA	14	Other	Other Object Related	Helicopter on longline hit side of helmet covered head - worker was not paying attention. Ample safety around helicopters done before hand.	Sent to doctor. Concussion. Man did not return to camp and could not be contacted by workers' compensation board for a long time.
Feb	ON	Driller Helper	MA	14	Chemical or Burn/Scald	Drilling Machinery Related	Worker suffered burns when hydraulic fluid from a broken fitting ignited.	Worker transported to nearby hospital. Ministry of Labour investigated; shut down drill until fitting location re-engineered. Still waiting on final report from Ministry.
Oct	NT	Driller Helper	MA	14	Bruise/ Muscular	Slip/Fall	Drill helper was starting down the stairs to the rig when the stairs moved and he fell on top of the stairs (or the stairs fell on him). Issue is that the stairs were not properly fixed in place and so they moved. The helper had complained about the stairs not being properly fixed and no action was taken.	Requested contractor bring in safety officer. All safety procedures reviewed. H&S checklists implemented.
Jul	BC	Driller Helper	FA	14	Bruise/ Muscular	Improper Lifting	Repetitive-strain type injury.	Time off for healing, modified duties. Supervisor review of work practices and habits.

Feb	NT	Driller Helper	MA	12	Frostbite	Other	Contractor employee got frostbite while working at drill. Did not wear suitable gloves. Worker was from Northwest Territories so it was thought that the worker should understand cold operating conditions.	Put on light duty.
Aug	BC	Driller Helper	MA	12	Sprain	Improper Lifting	While performing a routine connection the helper was lift the inner tube up to lean against the tower when it got away on him, while extending himself to hold the tube upright he strained his neck.	Hazard alert was issued.
Sep	QC	Driller Helper	MA	11	Sprain	Slip/Fall	Worker fell while changing core tube and setting foot on empty tube.	Make sure that all work areas are tidy.
Aug	YT	Driller Helper	MA	7	Back	Improper Lifting	Worker sustained lift and twist injury while lifting drill rod.	Sent to see doctor. Light duty after one week then back to drilling.
Jul	ON	Driller Helper	MA	7	Skeletal	Slip/Fall	Worker tripped on debris on floor of drill pump shack and fell, striking shoulder on equipment.	Worker transported to local hospital. Meeting with crews to discuss housekeeping and best way to access pump shack.
Apr	QC	Driller	MA	6	Sprain	Drilling Machinery Related	Sound wall fell on driller's leg.	
Jun	NU	Driller Helper	FA	4	Back	Improper Lifting	Lifted a snowmobile stuck in the slush.	
Apr	SK	Driller Helper	MA	2	Sprain	Slip/Fall	The helper was working on the waterline and he went to the drill to warm up. He was unfamiliar with the terrain and the drill. It was dark and he failed to see an icy patch. He slipped and twisted his ankle.	Immediate first aid was performed and when returned to town, he visited a doctor. It was recommended that he keep his weight off the foot for 2 days.
May	NU	Driller	MA	2	Skeletal	Drilling Machinery Related	Mid-shaft fracture in right forearm.	
Jun	BC	Driller	FA	2	Back	Improper Lifting	Worker was lifting a swivel rod. As he stood up to put the rod in place he experienced sharp pain in his lower back.	Sent out for medical aid.

Feb	QC	Driller Helper	MA	1	Skeletal	Drilling Machinery Related	A worker crushed his left little finger between a propane bottle and the door frame of the pump shack. It resulted in a open fracture.	Airplane evacuation and surgery; held safety meeting.
Jan	QC	Driller	MA	1	Cut	Other Object Related	Tiny needle of metal was stuck in one finger. Initially unnoticed and too small to really hurt; driller noticed only after feeling ill.	Treatment at hospital followed by rest and light duty.
Sep	BC	Driller Helper	MA	1	Eye Injury	Tool Use	Piece of metal went in eye while grinding a metal rod. Safety glasses were worn by worker; worker might have rubbed eye with gloves that had metal shavings.	Taken to first aid and on to medical aid where the metal shaving was removed from eye. Spoke to team about incident and reminded then about ensuring safety protection is worn and fits properly when using tools or equipment.
Sep	BC	Driller Helper	MA	1	Cut	Tool Use	Cut to right upper thumb while using band straps. No gloves were worn which could have prevented the cut.	Taken to first aid then to medical aid where they received 3 stitches. Held team meeting to speak of incident; reminded team to wear gloves when doing any work on site.
Jun	BC	Driller	MA	1	Chemical or Burn/Scald	Drilling Machinery Related	While checking electrical connections to the battery on the drill, the battery exploded in the worker's face.	First aid in camp and then to hospital for follow-up.
Aug	BC	Driller Helper	FA	1	Bruise/ Muscular	ATV	Rolled a quad while driving too fast.	Machine modification to reduce speeds. Camp review of incident. Detailed review with worker in question.

Building a Culture of Safety

There has generally been a gradual increase in the proportion of companies with a health and safety program over the past eight years although the percentage of respondents that declare that they have a health and safety program dropped from 93% in 2010 to 82% in 2011. Reporting of other leading indicators has remained relatively consistent over time, however, with slight variations from year to year. The percentage of companies discussing safety issues at staff meetings was 80% compared in 2011, down from 80% in 2010. The percentage of

organizations who reported on their safety performance who report discussing near misses at staff meetings is consistent – at 84% in 2011 compared to 85% in 2010. We are pleased to report that participation in the survey increased from 205 companies in 2010 to 233 companies in 2011, but down from a record of 349 companies in 2009 (see Figure 2).

The ultimate objective is a sincere "Yes" in 100% of replies to all three of these questions. To increase awareness of safety and to get a richer picture of how embedded a culture of safety is in the mineral exploration workplace, survey questions have been revised for 2012. Our hope is that increased awareness of leading indicators and the frank discussion of safety at all levels of all mineral exploration companies will contribute to the culture of safety in the mineral exploration industry.

Figure 2: Canadian Mineral Exploration Health and Safety Participation Overview

Figure 2a: Reporting Summary 2005-2011

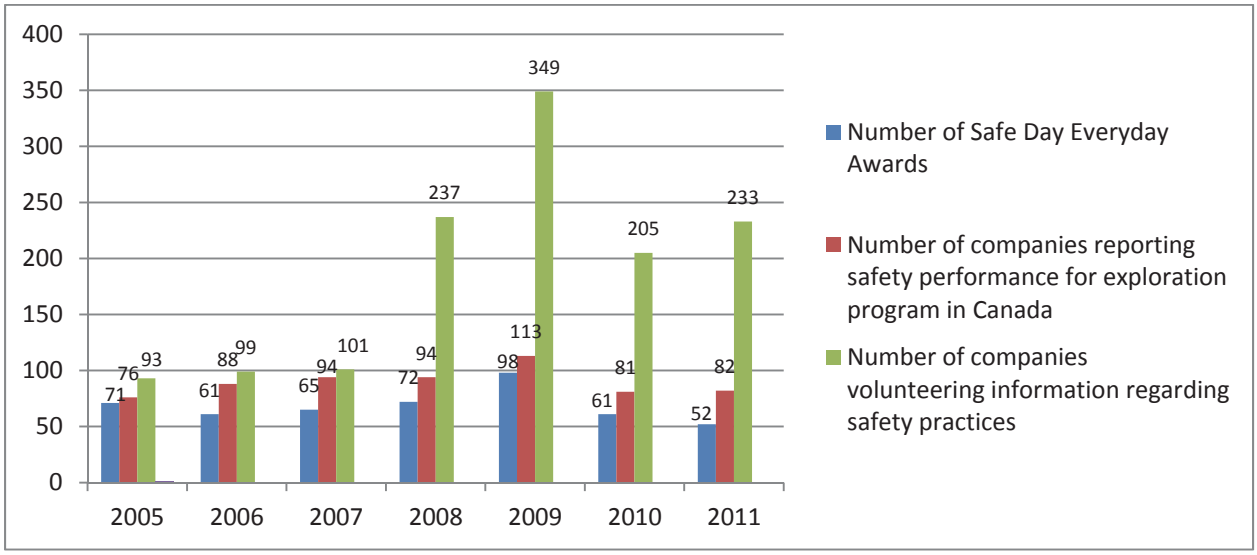
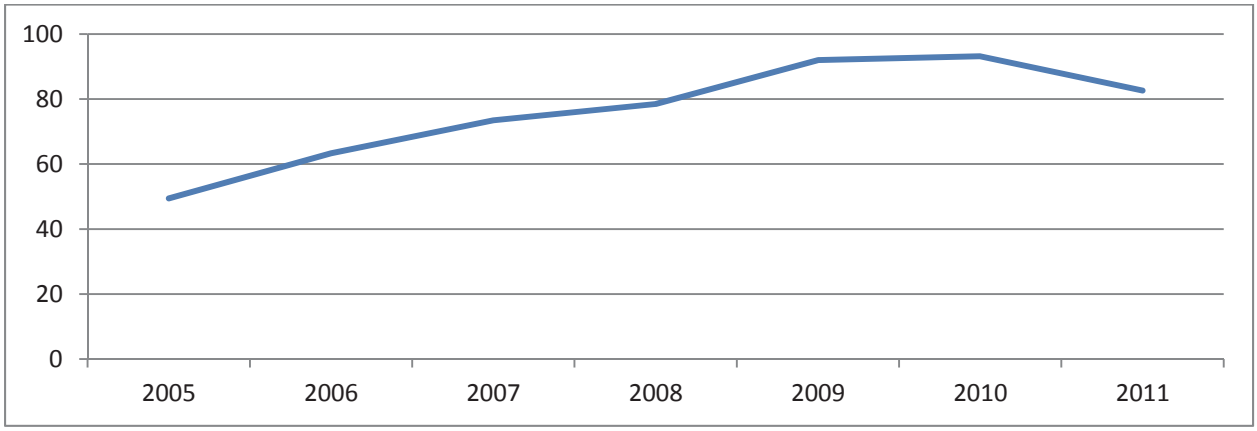


Figure 2b: Percentage of organizations with safety program



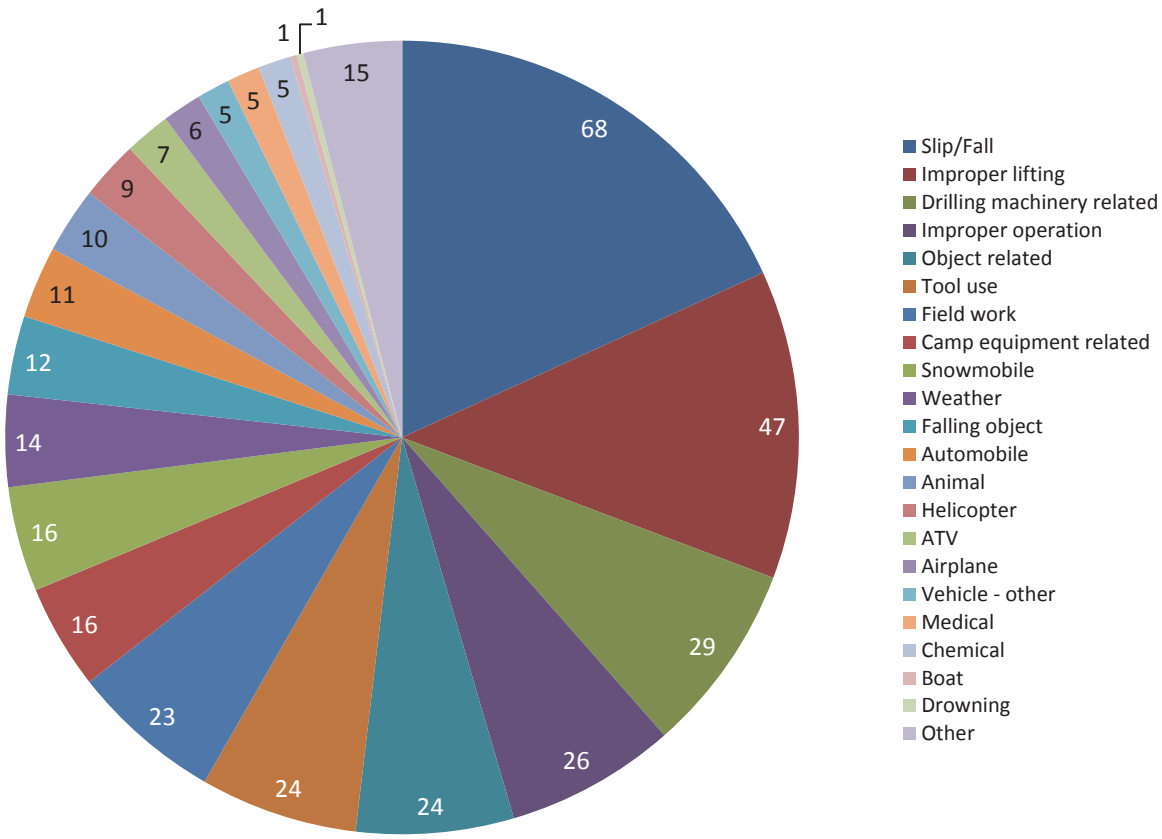
Cause of Incidents

The causes of all incidents are illustrated in Figure 3.

Year after year, slips and falls are consistently the single leading cause of incidents. Mineral exploration activity presents a number of slippery surfaces (e.g. ice, wet drill decks, boulders, logs) and opportunities for falls (e.g. uneven terrain including steep slopes, muskeg, and snow). The use of tools and equipment through various causes (drilling machinery, improper operation, tool use, vehicle related incidents, and camp equipment) combined, however, accounted for 40% of incidents including the fatality in the survey.

Personnel should always use the required equipment properly – many cuts and other injuries are caused by using improper equipment or by not using caution when handling sharp objects or machinery.

Figure 3: Cause of incident

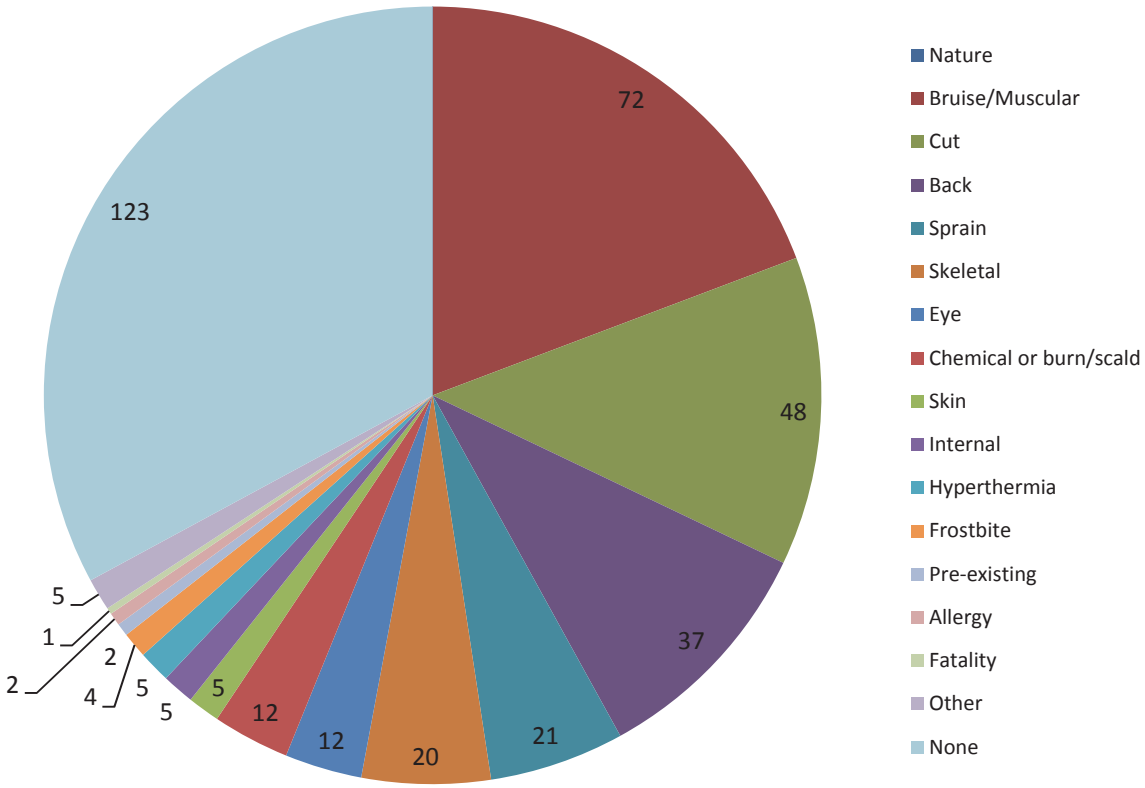


Nature of Injuries

The nature of lost workday incidents is illustrated in Figure 4.

Bruises and muscular injuries were the primary nature of injuries, consistent with 2010 (cuts had previously been the primary reported nature of injuries). Both types of injuries are often related to several of the leading causes of injuries: slips and falls, and misuse of tools and equipment. Bruises and muscular injuries continued to be the second highest cause, and tend to result from the same causes. Approximately one-third of incidents did not result in injury.

Figure 4: Nature of Injuries



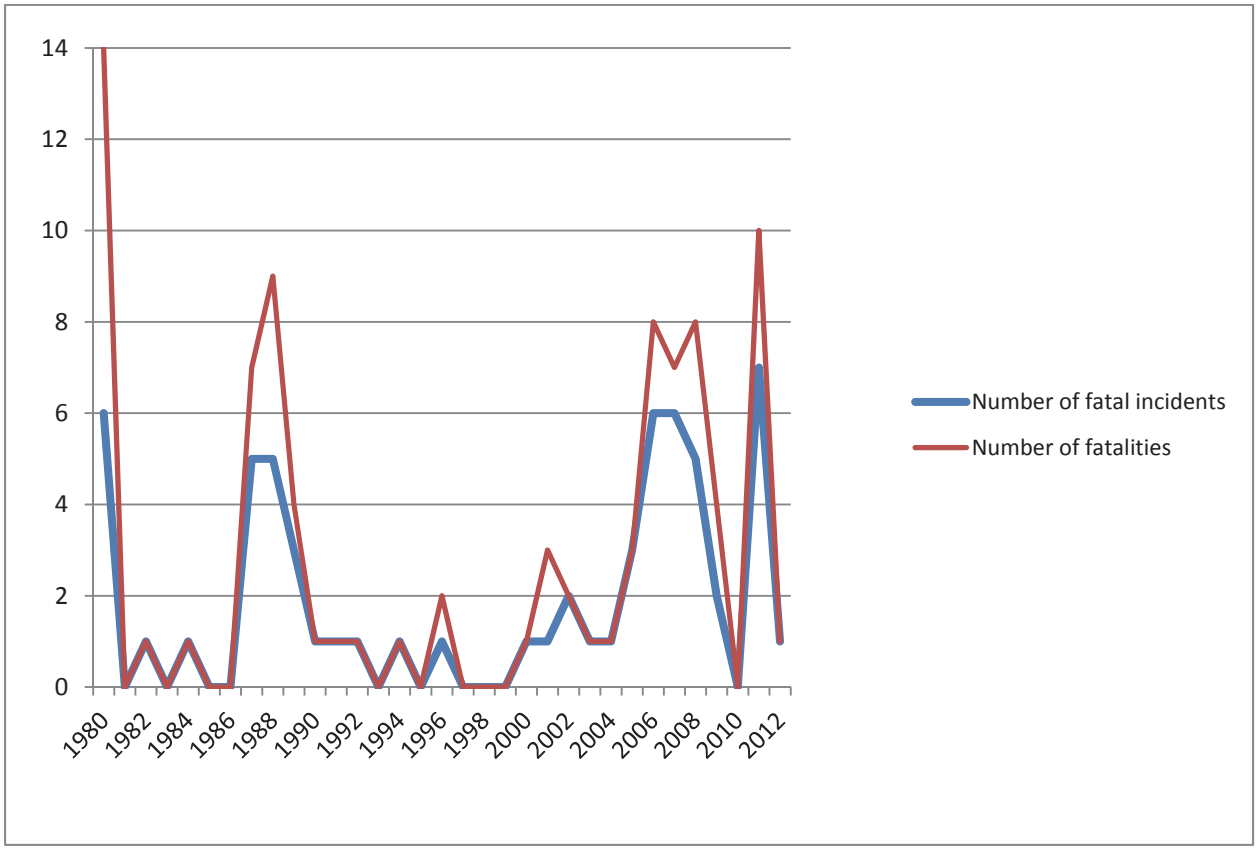
Fatalities 1980-2012: An Overview

AME BC and PDAC have compiled information on fatal incidents in mineral exploration by seeking information from exploration companies working in Canada (Table 3) and the rest of the world (Table 4). The data is not complete, and input is sought from members of the industry to update the data; for example, the 2011/2012 report contains fatalities from 1987 to 1996 that have not been included in previous reports.

The objective of a fatality listing in mineral exploration activities is to highlight the principal events that can result in fatalities. The industry itself can then develop protocols and methodologies to prevent reoccurrence of these events. The reader should note that the data includes various categories of workers who may have been employed by contractors, rather than directly by an exploration company. Thus, pilots of aircraft and employees of drilling companies are included. Aircraft accidents are only included if directly connected with exploration. People are listed as *Geologist* (where the profession is known), *Field* (all employees in field, but not geologist, pilot or driller), *Pilot*, or *Driller* (all drill company employees).

Figure 5 illustrates the trend in fatalities in mineral exploration in Canada over time from 1980 to the present. The data prior to 1980 is clearly incomplete and would be misleading. There were no fatalities in 2010, but there were ten fatalities in 2011 – the highest number in any year since 1980. Although this record is due in part to a booming global mineral exploration and development sector, we hope also increased vigilance by mineral exploration companies and contractors will reverse this record - permanently.

Figure 5: Fatalities in Mineral Exploration in Canada 1980-2012



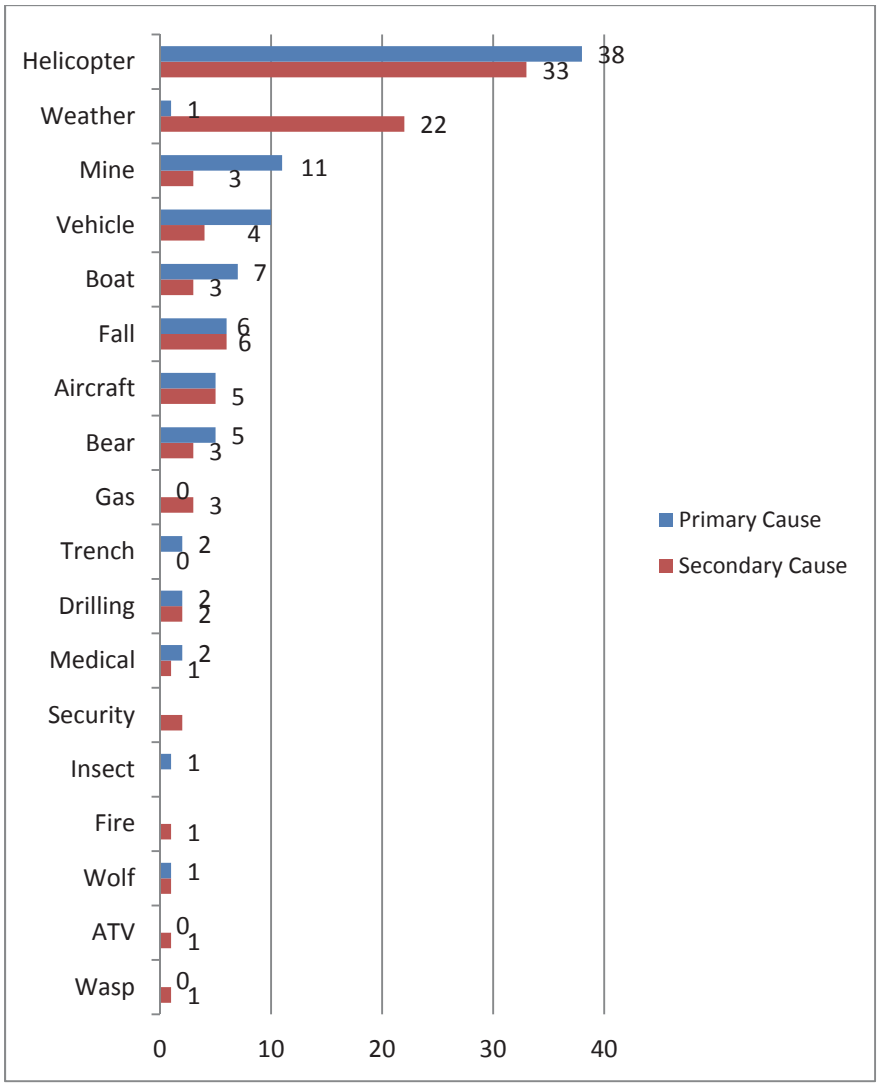
The graph shows the following points:

- There have been 91 fatalities involved in mineral exploration in Canada since 1980 – an average of 2.8 fatalities per year. Note that these include fatalities for activities related to exploration such as helicopter services, geophysical surveys, and logging.
- There is no clear indication of a trend over time. Years with high exploration activity, however, tend to have higher numbers of fatalities.
- Only 10 of the past 33 years – including 2010 - had zero fatalities.
- The year 2011 had the highest number of fatal incidents since 1980.

Despite increased safety awareness over time, the data suggests that industry has not managed to make exploration significantly safer in relation to fatalities. This fact is clearly a challenge for all concerned to take action.

The fatalities have been classified by primary and secondary cause as outlined in Figure 6.

Figure 6: Fatalities in Mineral Exploration in Canada by Primary and Secondary Cause 1980-2012



The main cause of each fatality is listed as the primary cause. A different secondary cause is listed in cases where the secondary cause contributed significantly to the fatality. In cases where few details are available, or where there was not secondary aggravating cause, then the secondary cause is listed as the same as the primary. Thus, for a helicopter accident where no details are available then the secondary cause is listed as *Helicopter*. However, for a helicopter accident where the people involved survived the crash, but died due to exposure in poor weather, *Weather* is listed as the secondary cause. Where a vehicle accident related to icy roads, then the secondary cause is listed as *Weather*.

The data shows that helicopters are the prime cause of fatalities in exploration. This is exacerbated by the fact that helicopter accidents often cause multiple fatalities. It is interesting that fixed wing accidents, here noted as *Aircraft*, have only caused one exploration fatality in the period.

For the second highest primary category, boats, it should be observed that most fatalities occurred in the 1980s, and this likely relates to the fact that boats have since been used less in exploration over time.

Although weather is not prime cause of any of the fatalities, weather is the most important factor in the secondary category. This indicates that preexisting issues – such as helicopter or vehicle problems – have been aggravated by weather. In Canada this usually relates to winter but also relates to sudden changes in the weather, such as wind that was a contributing factor to four boating fatalities in 1988.

Transportation overseas continues to be a major contributor to fatalities overseas. In 2010, eleven personnel including the directors of a mining company perished when their plane crashed en route from Cameroon to an iron ore project in the Republic of Congo. In 2011, five of six fatal incidents were related to transportation.

It is suggested that exploration field crews need to be cognizant of these underlying factors and that any exploration safety manuals, training, and protocols take into account these statistics.

If you have any information to add to this database, please contact AME BC or the PDAC.

Table 3: Fatalities in Mineral Exploration in Canada 1980-2012

Company	Year	Prov/ Terr	Cause	Category 1	Category 2	No. of Deaths	Personnel
Government	1980	NS	Trench collapse/rainstorm	Trench	Weather	2	Geologist/Field
Major	1980	MB	Geologist drowning trying to swim to shore	Boat	Boat	1	Geologist/Field
Other	1980	ON	Prospector died from carbon monoxide in mine shaft	Mine	Gas	1	Geologist/Field
Other	1980	BC	Walked into tail rotor of helicopter	Helicopter	Helicopter	1	Geologist/Field
Other	1980	BC	Helicopter accidents (2)	Helicopter	Helicopter	9	Pilot/Geologist/Field
Other	1982	BC	Canoe related drownings	Boat	Boat	1	
Major	1984	ON	Truck rolled on ice road	Vehicle	Weather	1	Driller
Major	1987	BC	Bear mauling	Bear	Bear	1	Driller
Other	1987	BC	Fall from box of pick-up truck	Vehicle	Fall	1	Geologist/Field
Other	1987	BC	Fall from cliff	Fall	Fall	1	Geologist/Field
Other	1987	BC	Fall into crevasse while glissading	Fall	Fall	1	Geologist/Field
Other	1987	BC	Helicopter flew into fog bank during radio transmitter set-up	Helicopter	Weather	3	Pilot/Field
Other	1988	BC	Canoe related drownings	Boat	Weather	4	Geologist/Field
Other	1988	BC	Underground contract miner killed by fall of ground	Mine	Fall	1	Miner

Other	1988	BC	Helicopter crashed on routine flight.	Helicopter	Weather	2	Pilot/Warehouse Worker
Other	1988	BC	Diamond drill foreman died as result of heart attack while walking up to the drill rig.	Medical	Medical	1	Driller
Other	1988	BC	Prospector died of heart attack; campfire started sleeping bag on fire.	Medical	Fire	1	Field
Other	1989	BC	Young underground truck driver was crushed between rolling truck and stationary scooptram.	Mine	Vehicle	1	Miner
Other	1989	BC	Underground magazine detonated resulting in the deaths of two shift bosses - considered to be murder case	Mine	Security	2	Miner
Other	1989	BC	Shift boss was killed by walking into residual smoke from a blast and being struck by a loader being moved into position	Mine	Vehicle	1	Miner
Other	1990	BC	ATV turnover	Vehicle	ATV	1	Geologist/Field
Other	1991	BC	Wasp sting, allergic reaction	Insect	Wasp	1	Geologist/Field
Major	1992	ON	Student was attacked by bear while taking soil samples.	Bear	Bear	1	Field
Major	1994	ON	Vehicle on ice	Vehicle	Weather	1	Geologist/Field
Other	1996	BC	Asphyxiation from using gas-burning water pump at the bottom on an underground access shaft.	Mine	Gas	2	Field
Major	2000	NT	Tower dropped while slinging	Drilling	Helicopter	1	Driller
Major	2001	NT	Helicopter crash - cause uncertain	Helicopter	Helicopter	3	Pilot/Geologist/Field
Major	2002	ON	Geophysicist killed in fall on cliff/wet weather	Fall	Weather	1	Geologist/Field
Other	2002	BC	Bear mauling/oil drilling site	Bear	Drilling	1	Driller
Other	2003	ON	Small plane crash	Aircraft	Aircraft	1	Geologist/Field
Other	2004	BC	Rock fall at exploration project	Mine	Fall	1	Miner
Major	2005	QC	Driller: bulldozer through ice	Drilling	Weather	1	Driller
Other	2005	BC	Bear mauling	Bear	Vehicle	1	Field
Other	2005	SK	Wolf mauling	Wolf	Wolf	1	Field
Government	2006	YT	Geologist struck by rotor of helicopter during toe-in pickup	Helicopter	Helicopter	1	Geologist
Other	2006	YT	Bear mauling	Bear	Bear	1	Field
Other	2006	BC	Helicopter crash - broken transmission mount	Helicopter	Helicopter	3	Pilot/Driller/Helper
Other	2006	QC	Boat related drowning	Boat	Boat	1	Field
Other	2006	SK	Helicopter crash into lake	Helicopter	Helicopter	1	Field
Other	2006	SK	Helicopter crash during slinging operation	Helicopter	Helicopter	1	Pilot
Other	2007	SK	Helicopter crash into lake	Helicopter	Helicopter	2	Pilot/Geologist/Field
Junior	2007	NL	Helicopter crash during slinging operation	Helicopter	Helicopter	1	Pilot
Other	2007	NU	Drowning	?	Weather	1	Driller
Junior	2007	NT	Worker drowned when truck fell through ice	Vehicle	Weather	1	Field
Junior	2007	BC	Helper died in tent fire at end of season	Fire	Weather	1	Driller

Other	2007	ON	Road builder fell through ice when plowing ice to build winter road	Vehicle	Weather	1	Roadbuilder
Other	2008	BC	Helicopter plunged into river	Helicopter	Helicopter	4	Pilot/Geologist/Field/Driller
Major	2008	BC	Logger killed on exploration project	Fall	Fall	1	Logger
Other	2008	BC	Pilot killed in slinging incident	Helicopter	Drilling	1	Pilot
Other	2008	YT	Helicopter crashed in river	Helicopter	Helicopter	1	Pilot
Other	2008	NT	Helicopter crashed near lake	Helicopter	Helicopter	1	Driller
Junior	2009	QC	Field technician died in crash	Vehicle	Vehicle	1	Field
Junior	2009	QC	Miners drowned in underground shaft.	Mine	Mine	3	Miner
Other	2011	SK	Worker drowned when bulldozer fell through ice	Vehicle	Weather	1	Driller
Other	2011	SK	Worker drowned when plane engine failed and plane crashed	Aircraft	Aircraft	1	Field
Junior	2011	BC	Pilot and geological contractors killed in helicopter crash	Helicopter	Helicopter	3	Pilot/Field
Junior	2011	NT	Pilots killed when plane crashed	Aircraft	Aircraft	2	Pilot
Other	2011	ON	Pickup truck fell through ice	Vehicle	Weather	1	Unknown
Other	2011	QC	Helicopter crash upon descent	Helicopter	Helicopter	1	Worker
Other	2011	YT	Plane bringing supplies to exploration crashed	Aircraft	Aircraft	1	Pilot
Junior	2012	BC	Surveyor killed in avalanche	Fall	Weather	1	Field

Table 4: Fatalities Abroad in Mineral Exploration 1990-2012

Company	Year	Country	Cause	Category 1	Category 2	No. of Deaths	Personnel
Major	1990	Chile	Aircraft crash/hypothermia	Aircraft	Weather	4	Pilot/Geologist/Field
Major	1991	Chile	Boat capsized in squall	Boat	Boat	1	Geologist/Field
Other	1992	Australia	Driller was caught between mast and truck when moving drill mast	Drilling	Drilling	1	Driller
Major	1994	Chile	Vehicle accident/sleeping/alcohol	Vehicle	Alcohol	1	Geologist/Field
Other	1994	Ecuador	Helicopter crash - weather/pilot error	Helicopter	Weather	5	Pilot/Geologist/Field
Other	1995	Australia	Driller caught between rotating rods and mast	Drilling	Drilling	1	Driller
Major	1996	Philippines	Shot by guerrillas	Security	Security	1	Geologist
Major	1996	Turkey	Truck rolled	Vehicle	Vehicle	1	Driller
Other	1997	Australia	Helicopter crash, blade hit geologist standing by	Helicopter	Helicopter	1	Geologist/Field
Other	1997	Australia	Vomiting, unconscious due to heat exhaustion	Weather	Weather	1	Geologist/Field
Major	2000	Chile	Snowstorm	Weather	Weather	2	Driller
Major	2000	Argentina	Truck driven off the road	Vehicle	Vehicle	1	Driller
Major	2002	Chile	Murder of two geologists by thieves	Security	Security	2	Geologist
Major	2003	Chile	Vehicle accident/sleeping	Vehicle	Vehicle	1	Geologist
Other	2003	Mexico	Geologist swarmed by bees	Insects	Bees	1	Geologist
Junior	2004	Eritrea	Murdered	Security	Security	1	Geologist/Field
Midsize	2005	Chile	Aircraft crash/hypothermia	Aircraft	Weather	6	Pilot/Geologist/Field
Junior	2008	Chile	Helicopter crash	Helicopter	Helicopter	1	Field
Major	2008	Papua New Guinea	Mudslide onto exploration camp	Weather	Weather	10	Geologist/Field/Other

Junior	2010	Republic of Congo	Aircraft crash en route to executive site visit of exploration project	Aircraft	Aircraft	11	Pilot/Geologist/Other
Junior	2010	United States	Driller helper's clothing caught in moving drill equipment	Drilling	Drilling	1	Driller

Resources

Safety Guidelines and Manuals

The PDAC Field Safety Pocket Guide is available in English, French and Spanish. It is a portable handbook that can be easily carried in the field. The waterproof and tear-resistant guide includes a variety of safe fieldwork practices that will increase ones 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/pdac/advocacy/health-safety/index.html.

A comprehensive source of safety information for mineral exploration focused on Western Canada is AME BC's *Safety Guidelines for Mineral Exploration in Western Canada*. The guidelines are available online at http://www.amebc.ca/policy/health-and-safety/safety-guidelines/safety-mineral-exploration-western-canada.aspx and from the AME BC 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.

Safety Checklists, Stickers, and Cards

AME BC has prepared safety checklists, stickers, and cards to assist in preparedness in the field. A general safety checklist, survival kit checklists, and procedures in the event of a serious incident or fatality are on pages 180 to 182 and 184 of the *Safety Guidelines.* Waterproof stickers covering transportation safety, field work and traversing safety, communication, helicopter safety, and environmental considerations for drilling are available from the AME BC office or in Adobe Acrobat .pdf format at http://www.amebc.ca/policy/health-and-safety/health-and-safety-resources.aspx.

Workshops & Courses

Safety Workshops

AME BC Exploration Safety for Project Managers	Friday, March 22, 2013	Vancouver
AME BC Introduction to Exploration Safety	Saturday, March 23, 2013	Vancouver

Wilderness First Aid

A certification in Wilderness First Aid, as well as a *Heart and Stroke Foundation of Canada* certification in CPR/AED and Anaphylaxis & Epinephrine will be issued. The certification will be valid for three years and is accepted across Canada. Contact Nadim Kara at the PDAC for further details: nkara@pdac.ca. In Vancouver, a 40-hour course is offered by Wilderness Alert (1.800.298.9919; www.wildernessalert.com).

For courses on Occupational Health & Safety, please consult the following websites:
-Workplace Safety North – http://www.workplacesafetynorth.ca/resources/free-downloads
-Canadian Centre for Occupational Health and Safety – www.ccohs.ca
-CanOSH – www.canoshweb.org/Training/training.html
-websites of local postsecondary institutions

Information on additional resources is welcome; please contact AME BC or the PDAC.

Canadian Mineral Exploration Health & Safety Awards

The Canadian Mineral Exploration Health & Safety Awards trace their roots to 1983 when the BC & Yukon Chamber of Mines (now AME BC) first recognized the commitment of mineral exploration companies active in British Columbia and Yukon to health and safety. The awards program was expanded nationwide for the year 2005 in cooperation with PDAC.

Safe Day Everyday Gold Award

The 2011 recipient of the **Safe Day Everyday Gold Award** for the highest number of hours worked without a lost workday incident is **BHP Billiton Canada Inc.** for recording 391,549 hours of exploration work without a lost workday incident.

Past recipients are as follows:

2005 FNX Mining Company Inc.
2006 Exploration Division of De Beers Canada Inc.
2007 Exploration Division of De Beers Canada Inc.
2008 Northgate Minerals Corporation
2009 FNX Mining Company Inc.
2010 Quadra FNX Mining Ltd.

Safe Day Everyday Award

The **Safe Day Everyday Award** (formerly the Exploration Safety Award) is presented to 52 companies for operating throughout 2011 without a lost workday. Tri Origin Exploration is a recipient for the sixth consecutive year. The number of consecutive years in which a company has received the award is in parentheses.

Alexco Resources
AM Gold Inc.
Anglo American Exploration (Canada) Ltd. (3)
Astral Mining Corporation
AuRico Gold
Aztec Geoscience Inc.
Bear Lake Gold Ltd
BHP Billiton Canada Inc.
Boart Longyear
Buchans Minerals Corporation
Canadian Royalties Inc.
Castle Resources Inc (3)
Cornerstone Resources Inc. (2)
Crosshair Energy
Dajin Resources Corp.
Denison Mines Corp.
Durfeld Geological Management
Eagle Hill Exploration Corporation (3)
Endurance Gold Corp (2)
FB Drilling (3)
Fjordland Exploration Inc. (5)
Gossan Resources Limited (5)
Hard Creek Nickel Corporation (3)
Huakan International Mining Inc. (2)
KGHM International Ltd. (3)
Kiska Metals Corp
Kria Resources Inc.
Kutcho Copper Corp
Lakehead Helicopters Inc.
Largo Resources Ltd.
Laurion Mineral Exploration Inc.
New Gold Inc.
New Millennium Iron Corp. (5)
Newfoundland and Labrador Geological Survey (2)
Northern Gold Mining Inc.
Ontario Geological Survey (4)
Paragon Minerals Corporation
Pitchstone Exploration Ltd.
Queenston Mining Inc.
Quinlan Prospecting Inc. (2)
Rainbow Resources Inc.
Rio Tinto Exploration Canada Inc.
Talmora Diamond Inc.
Teck Resources Limited (4)
Tri Origin Exploration (6)
United Reef Limited
Vale Exploration Canada
Votorantim Metals Canada Inc. (3)
Western Copper and Gold Corporation
Wildcat Exploration Ltd
Xstrata Copper (2)
Yukon Zinc Corporation (3)

David Barr Award

Gordon Maxwell is the 2012 recipient of the **David Barr Award for Leadership and Innovation in Mineral Exploration Health and Safety**. He is acknowledged for his dedication to the health and safety of all personnel in the industry, particularly in his involvement with the Canadian Diamond Drilling Association.

Past recipients are as follows:

2005 David Barr
2006 Imperial Metals Corporation
2007 Ian Paterson
2008 Bill Mercer
2009 Doug Flynn
2010 Harvey Tremblay
2011 Michael Gunning

Appendix: Canadian Mineral Exploration Health & Safety Survey 2011 Participants

We thank companies who reported on their safety programs either through the online or paper question and/or through a telephone survey.

Aben Resources Ltd
Abington Resources Ltd
Adex Mining Inc
Advanced Explorations Inc
Agnico-Eagle Mines Limited
Alexco Resources
Altius Resources Inc.
AM Gold Inc.
Amarc Resources Ltd.
American Creek Resources Ltd
Amerix Precious Metals Corp
Anglo American Exploration (Canada) Ltd.
Anooraq Resources Corp
Arctic Star Exploration Corp
AREVA Resources Canada Inc.
Astral Mining Corporation
Aura Silver Resources Inc
AuRico Gold
Aurizon Mines Limited
Avalon Rare Metals Inc.
Aztec Geoscience Inc.
Bard Ventures Ltd
Barkerville Gold Mines Ltd
Bayfield Ventures Corp
Bear Lake Gold Ltd
Bearclaw Capital Corp & Prism Resources Inc
Benton Resources Corp
BHP Billiton Canada Inc.
Bison Gold Exploration Inc
Bitterroot Resources Ltd.
Black Panther Mining Corp
Boart Longyear
Bralorne Gold Mines Ltd
Bravada Gold Corp
Bravo Gold Corp
Buchans Minerals Corporation
Burton Consulting Inc
Callinex Mines Inc.
Canada Lithium Corp
Canada Zinc Metals Corp.
Canadian Royalties Inc.
CanAlaska Uranium Ltd.
Capstone Mining Corporation
Cariboo Rose Resources Ltd
Carmax Mining Corp
Cartier Resources Inc
Castillian Resources Corp
Castle Resources Inc
Cayenne Gold Mines Ltd
Claude Resources Inc
Commander Resources Ltd
Commerce Resources Corp
Constantine Metal Resources Ltd
Continental Minerals Corp
Continental Precious Minerals Inc
Copper Fox Metals Inc.
Cornerstone Resources Inc.
Critical Elements Corp
Crosshair Energy
Cypress Development Corp
Dajin Resources Corp.
De Beers Canada Inc. - Exploration Division
Denison Mines Corp.
Dentonia Resources Ltd
Diamond Frank Exploration Inc
Dumont Nickel Inc
Durfeld Geological Management
Eagle Hill Exploration Corporation
Eastfield Resources Ltd.
Electra Gold Ltd
Endurance Gold Corp
Entrée Gold Inc
Equity Exploration Consultants Ltd.
FB Drilling
Fieldex Exploration Inc
First Nickel Inc
Fjordland Exploration Inc.
Fladgate Exploration Consulting Corporation
Focus Ventures Ltd
Fortune Minerals Ltd
Forum Uranium Corp
Franco-Nevada Corp
Full Metal Minerals Ltd
G4G Resources Ltd
Galena Capital Corp
Garibaldi Resources Corp
Geologix Explorations Inc
GGL Resources Corp
Ginguro Exploration Inc
Glen Eagle Resources Inc
GobiMin Inc
GoldQuest Mining Corp
Gossan Resources Limited
Government of British Columbia
Grande Portage Resources Ltd
Great Western Minerals Group Ltd
Hard Creek Nickel Corporation
Hellix Ventures Inc
Hillsborough Resources Ltd
Hinterland Metals Inc
Houston Lake Mining Inc
Huakan International Mining Inc.
Huldra Silver Inc.
Hy Lake Gold Inc
Hy-Tech Drilling Ltd
IAMGOLD Corporation
Imperial Metals Corporation
Independence Gold Corp.
Inlet Resources Ltd
Inspiration Mining Corp
International Bethlehem Mining Corp
International Metals Group
INV Metals Inc

Iron Creek Capital Corp
Jazz Resources Inc
Jubilee Gold Inc
K+S Potash Canada
KGHM International Ltd.
Kingsman Resources Inc
Kiska Metals Corp
Knight Resources Ltd
Kria Resources Inc.
Kutcho Copper Corp
La Ronge Gold Corp
Lakehead Helicopters Inc.
Largo Resources Ltd.
Laurentian Goldfields Ltd
Laurion Mineral Exploration Inc.
Leeward Capital Corp
MacDonald Mines Exploration
Mazorro Resources Inc
Mercator Minerals Ltd
Ministère des ressources naturelles et de la Faune - Québec
Minto Explorations Ltd.
MPH Ventures Corp
New Gold Inc.
New Millennium Iron Corp.
New Shoshoni Ventures Ltd
Newfoundland and Labrador Geological Survey
Niocan Inc
Noble Mineral Exploration Inc
North American Palladium Ltd
North American Tungsten
Northern Dynasty Minerals Ltd
Northern Gold Mining Inc.
Northern Shield Resources Inc
Northern Tiger Resources
Nuinsco Resources Ltd
Ontario Geological Survey
Orestone Mining Corp
Osisko Mining Corp
Pacific Iron Ore Corp
Paragon Minerals Corporation
Peregrine Diamonds Ltd
Pilot Gold Inc.
Pitchstone Exploration Ltd.
Platinex Inc
Polar Star Mining Corp
Prodigy Gold Inc.
Prophecy Platinum Corp
Puget Ventures Inc
Quartz Mountain Resources Ltd
Queenston Mining Inc.
Quinlan Prospecting Inc.
Radius Gold Inc
Rainbow Resources Inc.
Red Crescent Resources Ltd
Remington Resources Inc
Richmont Mines Inc
Rio Tinto Exploration Canada Inc.
Rocktech Resources Inc
Rockwell Diamonds Inc
Romios Gold Resources, Inc.
Royal Nickel Corporation
Sable Resources Ltd
Santa Fe Metals Corp
Sea Green Capital Corp
Seabridge Gold Inc
Selwyn Resources
Shell Canada Energy
Sherritt International Corp
Shore Gold Inc
Sienna Gold Inc
Sirios Resources Inc
Skyharbour Resources Ltd
Skyline Gold Corp
SLAM Exploration Ltd.
Snowfield Development Corp
Soquem Inc
Soquem Inc
Southern Pacific Resource Corp
Southern Silver Exploration Corp
Sparton Resources Inc
St Andrew Goldfields Ltd
Stikine Gold Corp
Stillwater Canada Inc
StoneShield Capital Corp
Stornoway Diamond Corp
Strike Minerals Inc
Sultan Minerals Inc
Taku Gold Corp
Talmora Diamond Inc.
Teck Resources Limited
TerraLogic Exploration Inc
Terranotes Ltd
Teuton Resources Corp
Tintina Resources Inc
Tres-Or Resources Ltd
Trevali Mining Corporation
Tri Origin Exploration
Typhoon Exploration Inc
UEX Corp
Unigold Inc
United Reef Limited
Uranium North Resources Corp
URSA Major Minerals Inc
Vale Exploration Canada
Victoria Gold Corp
Victory Nickel Inc
Victory Resources Corp
Vior Mining Exploration Co Inc
Virginia Mines Inc.
Visible Gold Mines Inc
Votorantim Metals Canada Inc.
Wallbridge Mining Company Limited
Watts, Griffis and McOuat
Western Copper and Gold Corporation
Western Troy Capital Resources Inc
White Tiger Mining Corp
Wildcat Exploration Ltd
Xstrata Copper
Yukon Zinc Corporation

Canadian Mineral Exploration Health & Safety Survey – also online at http://64.114.94.36/survey.aspx?survey=1&RD=1

Canadian Mineral Exploration Health & Safety Survey 2012

• The form should be completed by junior companies, major companies, government geological surveys, diamond drilling contractors, geophysical contractors, and any other companies or contractors carrying out exploration related activities in Canada.

Please include the names of contractors so that we do not duplicate information. These names will not be published.

• Complete all the required fields; (*) indicates required fields.
• If you have any questions about the form please contact Jonathan Buchanan at 604.630.3923 or jbuchanan@amebc.ca.
• All information will be kept confidential, and Personal Information Protection and Electronic Documents Act mandates will be maintained.

Name of Person & Company Responsible for Safety
(*Required Fields)

*Name:		
*Title:		
*Company Name:		
E-mail:		
Phone:		
*Street Address:		
*City:		
*Province/Territory:		Postal Code:

*Please complete and return by fax **by March 31, 2013** to Jonathan Buchanan, AME BC at 604.681.2363 or by mail to AME BC, Suite 800, 889 West Pender Street, Vancouver BC V6C 3B2*

Company: _____

*Does your organization…

- have a Health and Safety Program: Yes_____ No_____
  (Do you have any of the following: illness and injury prevention program; written policy on safety; written safe work procedures; safety training; accident investigation procedure; record keeping – safety statistics, progress on safety targets and objectives)

- have an emergency response plan at each field site? Always____ Sometimes _____ Never _____
  (Have you identified the potential incidents that could occur for your site and the actions you will take to ensure speedy response to protect workers?)

- conduct health and safety simulation exercises at each field site? Always____ Sometimes _____ Never _____
  (*Have you conducted a simulation of safety incidents and the effectiveness of your responses to such?)*

- conduct task risk analyses and identify hazards at each field site? Always____ Sometimes _____ Never _____
  (Have you identified the hazards associated with activities at your field site?)

*During worker meetings (staff, worksite, office meetings) safety is discussed (choose one of the following):

____ At the start of every meeting
____ As an agenda item at every meeting
____ As an agenda item occasionally at meetings
____ Never

*For Board of Directors meetings, safety is discussed (choose one of the following):

____ As a standing agenda item
____ Only when there is an incident
____ Never

*With respect to contractors (choose any of the following):

____ Safety performance expectations have been clearly communicated (i.e. in contract or other formal communication)
____ Contractors have their own safety program
____ Contractors and employees use the same safety program
____ Information on safety programs and performance expectations of contractors is unknown

*With respect to safety measures (choose any of the following)

____ Employees and/or contractors have their own safety field guide or manual
____ Employees and/or contractors have access to a safety field guide or manual
____ Employees and/or contractors use a PDAC or AME BC health and safety manual
____ They are not available to employees and/or contractors

*Company:		
*Names of Contractors:		
Estimated mineral exploration expenditures in Canada in 2012		$
*Total number of person–hours worked in 2012 by company employees in Canada: (i.e. number of company employees multiplied by number of hours worked)		
*Estimated total of person-hours worked in 2012 by company contractors in Canada: (i.e. number of contractor employees multiplied by number of hours worked)		

Did you experience any incidents (either lost-time or without lost-time)?

Yes_____ No_____

If YES, please complete the following form.

Canadian Mineral Exploration Health & Safety Survey – also online at http://64.114.94.36/survey.aspx?survey=1&RD=1

Corporate and personal information will not be published

If additional space is required attach additional copies.

Date of Incident (month-day-year)	Location (e.g. town, field site)	Prov/Terr	Activity	Employee or Contractor (please specify)	Type	Classification	Nature of Injury	Cause or Primary Factor Related to Incident	Description of Incident (include factors such as experience, training, time of day that may have contributed)	Action Taken

Activity:
1-Business Travel
2-Drilling
3-Field Camp
4-Field Work
5-General Office Activities
6-Geophysics
7-Infrastructure Construction and Maintenance
8-Sample Preparation
9-Storage
10-Training
11-Transportation
12-Underground Work

Type:
1-Near miss or hit
2-First aid
3-Medical aid
4-Property damage

Classification:
1-Lost time incident
2-Restricted work incident
3-No lost time

Nature of Injury:
1-Sprain
2-Cut
3-Skeletal
4-Bruise/Muscular
5-Allergies
6-Substance Abuse
7-Frostbite
8-Eye
9-Chemical or Burn/Scald
10-Pre-Existing Condition
11-Back
12-Hyperthermia
13-Skin
14-Internal
15-Fatality
16-Other
17-Hypothermia
18-None

Cause or Primary Factor Related to Incident:
1-Slip/Fall
2-Airplane
3-Helicopter
4-Snowmobile
5-Automobile
6-ATV
7-Vehicle (Other)
8-Boat
9-Improper Lifting
10-Falling Object
11-Other Object Related
12-Drilling Machinery Related
13-Camp Equipment Related
14-Tool Use
15-Weather
16-Field Work
17-Animal
18-Chemicals
19-Improper operation (e.g. did not follow procedures)
20-Drowning
21-Medical Condition
22-Other

Date: _____ Company: _____

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Printed in Canada, February 2013

“Have a safe day, everyday.”