

# Chief Inspector of Mines **2019** **Annual Report**



Ministry of  
Energy, Mines and  
Low Carbon Innovation

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## Messages from the Chief Inspector of Mines and Chief Permitting Officer

### *Hermanus Henning*

The year 2019 has seen major changes in Energy, Mines and Low Carbon Innovation (EMLI). Mining oversight was separated into two divisions: Mines Competitive and Authorizations Division (MCAD) and Mines Health, Safety and Enforcement Division (MHSE). MCAD focused on enhancing B.C.'s status as a globally competitive mining jurisdiction by undertaking projects that promote innovation, standardize and streamline permitting processes, build lasting relationships with Indigenous Groups, improve certainty for investors and build the B.C. brand. MHSE concentrated on taking a proactive risk-based approach to regulating health and safety at mines, enhancing communications and compliance promotion with industry, and improving overall regulatory effectiveness by establishing the Mine Audits and Effectiveness Unit and the Standing Code Review Committee.

The activities of the Office of the Chief Inspector of Mines for the 2019 calendar year are reflected in this report.

In 2019, there were 17 major mines in production in the province (eight coal and nine metal). A main goal for 2019 was to establish the MHSE and hire new staff, while putting processes in place that will enhance service and improve regulatory oversight, by ensuring a robust inspectorate training program and introducing new health and safety inspection plans. The hiring in 2019 focused on building the Health and Safety Inspectorate and establishing the Mine Audits and Effectiveness Unit.

While COVID did not affect 2019, it did play a major role in how we regulated the industry in 2020. Our industry had to re-think the way we work and has had far-reaching impacts as people adjusted to living and working during a global pandemic.

Be safe...

Hermanus Henning

Chief Inspector of Mines

### *George Warnock*

2019 was a year of transition for both the Regional Operations Branch and the Major Mines Office (MMO) of MCAD. Regional Operations implemented organizational changes to improve the responsiveness of permitting to exploration business cycles. Regional Operations also initiated the Mines Standardization and Service Improvement Project to assess and implement improvements to the intake and adjudication of Notices of Work (NoW) applications. A Mineral and Coal Exploration NoW Application Companion document was developed and released as part of that initiative to provide clarity with respect to information requirements for applicants seeking to conduct exploration.

In early 2019, the MMO was formed to bring together Project Managers from the Major Mines Permitting Office and technical subject matter experts from the Office of the Chief Inspector of Mines to create a single unit focused on permitting for major mines. Key leadership positions within the MMO, including an Executive Director, a Director of Technical Operations (TO), and three Project Director positions have been established and filled. The MMO also undertook an update of the Joint Application Information Requirements (JAIR) to provide guidance to mining proponents on the preparation of *Mines Act* and Environmental Management Act permit applications. Further updates to the JAIR will be undertaken periodically to ensure that it supports effective and timely authorization review processes.

Sincerely,

George Warnock

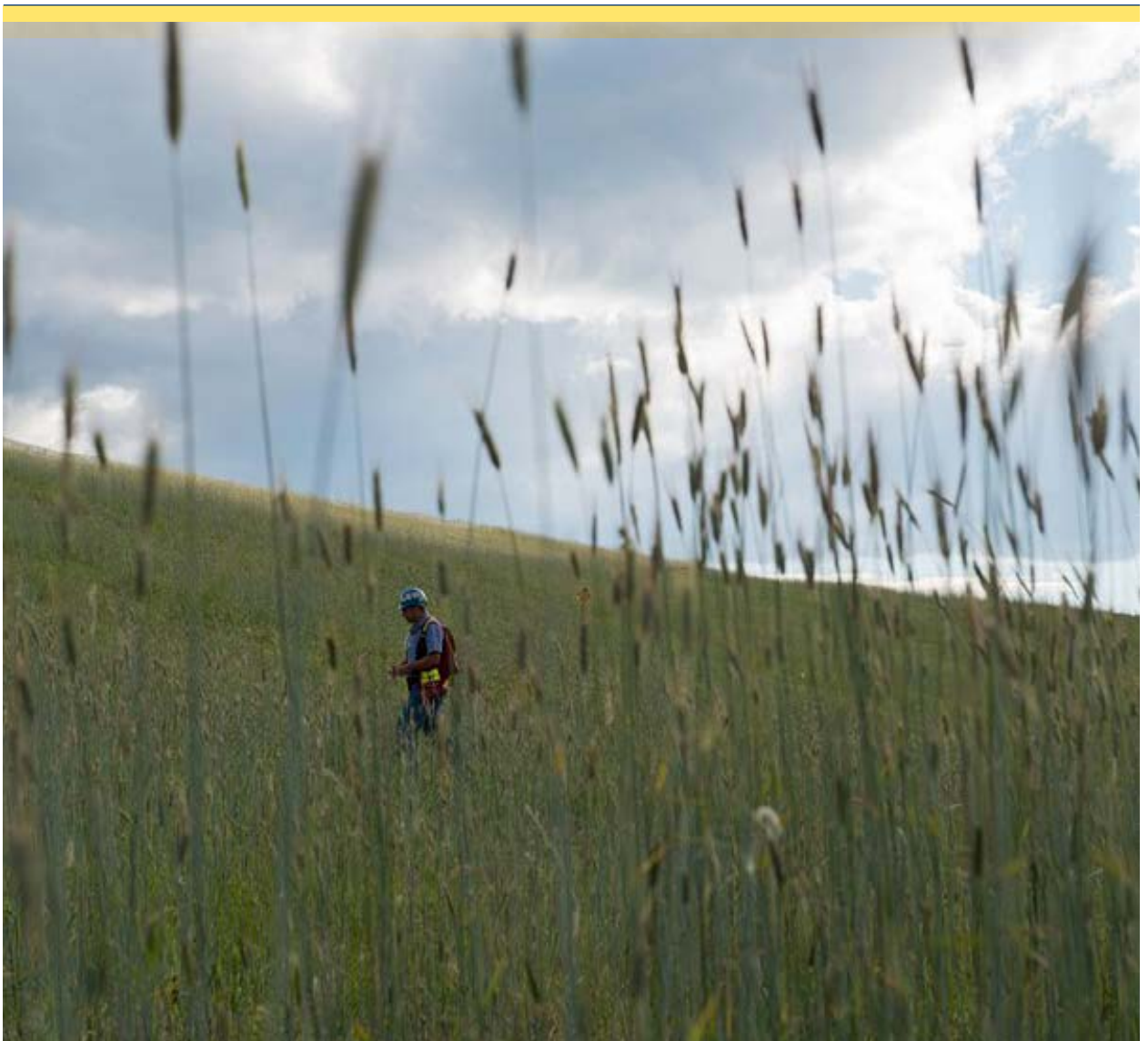
Chief Permitting Officer

## Executive Summary: Mining in B.C.

Mining is one B.C.'s most dynamic industries and continues to be a central component of the province's economy. Over 30,000 people were employed in mining in B.C. during 2019, and production of major commodities mined in the province is estimated at \$8.8 billion. Industry mineral exploration spending in 2019 totalled \$330 million. Fifteen major mines were in operation during 2019. There were 237 mineral and coal exploration authorizations, 40 quarries and industrial mineral mine authorizations, 158 placer mine authorizations, and 161 sand & gravel authorizations.

EMLI strives to maintain a competitive mining sector that creates jobs and grows the B.C. economy. The province is committed to providing effective regulatory oversight to help ensure that mining activities are conducted safely and responsibly. Mining continues to be one of the safest heavy industries in the province.

Throughout all stages of a mine's life, the Office of the Chief Inspector of Mines works to ensure that the high standards that have been set for mining in B.C. are met. The Ministry works with industry, workers, and communities to promote safe and responsible mining in B.C.



## Mining Regulatory Oversight

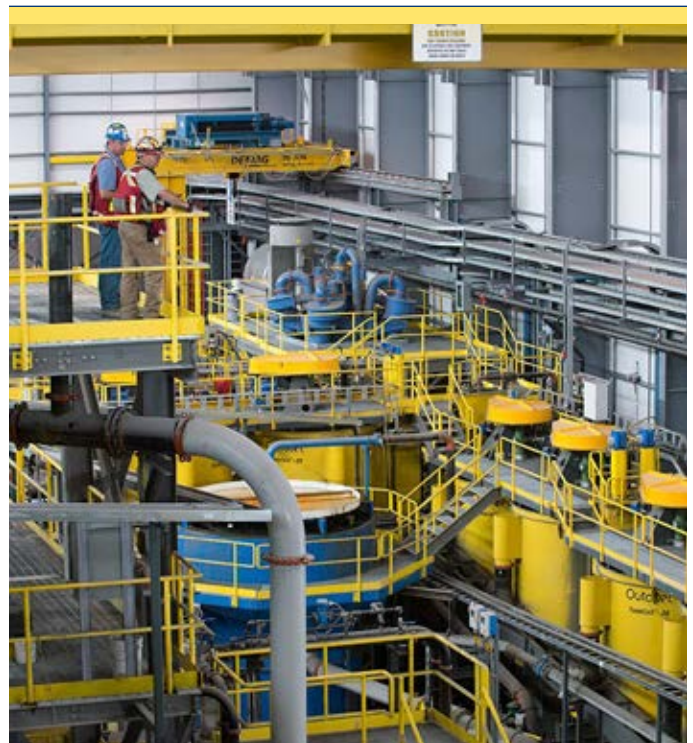
The Health, Safety and Reclamation Code for Mines in British Columbia (the Code) applies to all mines and sets out the following purpose statements:

- ▶ Protect employees and all other persons from undue risks to their health and safety arising out of or in connection with activities at mines
- ▶ Safeguard the public from risks arising out of or in connection with activities at mines
- ▶ Protect and reclaim the land and watercourses affected by mining
- ▶ Monitor the extraction of mineral and coal resources and ensure maximum extraction with a minimum of environmental disturbance, accounting for sound engineering practice and prevailing economic conditions

### *At A Glance: Key Regulatory Functions*

EMLI's regulatory activities take place during all phases of the mining life cycle including exploration, development, construction, production, reclamation, closure and post-closure. Regulation includes approving mining activities (including reclamation programs) through the issuance of permits under the *Mines Act* and establishment of site-specific requirements (e.g., permit conditions). Regulation also includes compliance verification activities (e.g., reviews and inspections) and enforcement. The following are examples of regulatory activities undertaken by EMLI:

- ▶ Reviewing applications and issuing *Mines Act* permits
- ▶ Conducting regular mine inspections, compliance reviews and enforcement activities
- ▶ Reviewing Mine Emergency Preparedness plans
- ▶ Liaising with mine managers, union representatives, mine workers, occupational health and safety committees, local communities, Indigenous Nations, technical organizations, and other government agencies
- ▶ Supporting research, development, and ongoing training to enhance best practices and promote new knowledge
- ▶ Administering certifications and examinations for mine workers
- ▶ Collecting data and maintaining records with respect to accidents, dangerous occurrences, and inspections
- ▶ Leading the Code Review Committee, comprised of labour, Indigenous and industry representative to ensure our standards remain among the best in the world



## Mining Sector Overview

The Minerals and Metals Production Statistics Program, which is administered jointly by Natural Resources Canada and Statistics Canada, indicates that the production value of B.C. mines decreased moderately from \$9.8B in 2018 to \$8.8B in 2019. Estimates generated by the British Columbia Mineral and Coal Exploration Survey show that exploration expenditures in B.C. were \$330 million in 2019, roughly equivalent to the \$331 million recorded for 2018. Over 30,000 people in British Columbia were employed in mineral exploration, mining, and related sectors in 2019.

### Metal and Coal Mine Activities

Nine metal mines and eight coal mines were in production across B.C. in 2019. The following tables provide information on the estimated production of these mines based on company reports.

#### Metal Mines

Mine Name	Company	Nearby Community	2019 Production	
Brucejack	Pretium	Iskut	Gold	354,405 oz
			Silver	422,562 oz
Copper Mountain	Copper Mountain Mining	Princeton	Copper	71.95 million lb
			Gold	26,746 oz
			Silver	271,835 oz
Gibraltar	Taseko	Williams Lake	Copper	126.5 million lb
			Molybdenum	2.7 million lb
Highland Valley Copper	Teck	Logan Lake	Copper	267.42 million lb
			Molybdenum	6.6 million lb
Mount Polley**	Imperial Metals	Likely	Copper	3.8 million lb
			Gold	10,619 oz
			Silver	11,119 oz
Mount Milligan	Centerra Gold	Fort St. James	Copper	71.1 million lb
			Gold	183,107 oz
New Afton	New Gold	Kamloops	Copper	79.4 million lb
			Gold	68,785 oz
			Silver	330,000 oz
Red Chris	Newcrest/Imperial Metals	Iskut	Copper	71.9 million lb
			Gold	36,471 oz
			Silver	133,879 oz
Silvertip*	Coeur Mining	Watson Lake	Silver	1.2 million oz
			Zinc	17.1 million lb
			Lead	16.6 million lb

\* Care and Maintenance as of January, 2020

\*\* Care and Maintenance as of May 31, 2019

## Coal Mines

Mine Name	Company	Nearby Community	2018 Production (tonnes)
Brule	Conuma Coal	Chetwynd	2.6 million
Coal Mountain	Teck	Sparwood	0.82 million
Elkview	Teck	Sparwood	7.4 million
Fording River	Teck	Elkford	7.9 million
Greenhills	Teck	Elkford	6.3 million
Line Creek	Teck	Sparwood	3.9 million
Willow Creek*	Conuma Coal	Chetwynd	0.8 million
Wolverine	Conuma Coal	Chetwynd	1.2 million

\*Care and Maintenance as of June, 2020

## Organizational Changes and Process Improvement

### Separation of Organizational Functions and Accountabilities

During 2019, EMLI separated its regulatory functions through the creation of MHSE, independent from MCAD. This separation was made to further support government's commitments to improve permitting and increase safety. Together, these two divisions work to achieve regulatory effectiveness. The structural changes were made in response to and were informed by recommendations made by the Office of the Auditor General for B.C., and the report prepared by the Mining Jobs Task Force (MJTF). The MJTF was comprised of

representatives from Indigenous communities, industry, municipal government, an environmental non-governmental organization, labour, post-secondary/training and the financial sector. These changes improve alignment with other provincial regulators by having permitting responsibilities separated from enforcement.

MCAD is focused on mine permitting<sup>1</sup>, building relationships, advancing reconciliation with Indigenous Groups, and attracting increased investment into B.C.'s mining sector by working to ensure that B.C. continues to be a competitive jurisdiction in which to operate.

MHSE is focused on taking a proactive risk-based approach to regulating health and safety at mines, enhancing communications and compliance promotion with industry, conducting compliance verification and enforcement, and improving overall industry safety and regulatory effectiveness. In 2019, EMLI also established the Mines Audits and Effectiveness Unit. The unit is mandated with conducting audits to assess the effectiveness of the regulatory regime in ensuring the protection of workers, the public, and the environment.

The inspectorate experienced significant growth in 2019 with 24 new positions added throughout the year.



<sup>1</sup> In 2019, work began to formalize this regulatory separation with a new statutory decision maker (Chief Permitting Officer) for the *Mines Act* permitting function. The *Mines Act* was amended in August 2020.

## Training

The Ministry has a formalized mandatory inspector training program, which provides consistency in regulatory activities and better service to the public, to industry, and to other stakeholders. New inspectors are required to complete the mandatory training curriculum and participate in field mentorship prior to being appointed by the Chief Inspector of Mines.

EMLI's training team was expanded in fall 2019 which has led to further enhancements of the inspector training program. A coordinated training calendar was delivered including 11 courses equating to a total of 51.5 hours of mandatory inspector training, calibration session and technical training. In addition to offering courses, training initiatives in 2019 focused on enhancing communication and coordination for field mentorship.

## Digital Service Enhancements

In March 2019, the Mines Digital Services team launched a pilot product, MineSpace. This product is an interconnective system that provides a direct link between mining proponents and EMLI. Mining proponents can view the status of their operation as it relates to EMLI information requirements, and the functionality is continually expanding. It allows Ministry staff and mining proponents to view the same content from a single database. MineSpace is being continually enhanced by the Mines Digital Services team to improve the link between the regulator and mining proponents, eliminate unnecessary emails, and improve processes. Work is ongoing to link digital systems to improve timely public transparency of regulatory oversight through the BC Mine Information website.

Contact [MDS@gov.bc.ca](mailto:MDS@gov.bc.ca) more information on EMLI's MineSpace product.

## Permitting

Mining activities require a *Mines Act* permit before ground disturbance can begin. The requirements depend on the mine type as well as the scope of proposed activities.

EMLI's regional offices are responsible for processing applications under sections 9.2.1(1) and 10.1.1 of the Code for mineral, coal, placer, and aggregate exploration activities, as well as producing, placer, quarry, industrial minerals, and sand and gravel mines. Applications for regional *Mines Act* permits and amendments are submitted through a NoW form (as the "plan" described in *Mines Act* 10(1)) and are adjudicated by inspectors of mines with delegated authority from the Chief Inspector of Mines. Application decisions are informed by input from specialized technical staff, other agencies, and communities. Indigenous Nations are consulted so that impacts to their rights, title, and other interests are fully considered.

For major producing metal and coal mines that fall under Section 10.1.2 of the Code, applications are submitted to the Chief Inspector of Mines. This includes applications for new mines, as well as applications for expansions or upgrades to existing mines, amendments for changes to existing mines, and some large-scale exploration and development projects.





Where multiple authorizations are required for a major mine the MMO's Project Management Office (PMO) coordinates the review of all applications, providing a one-window approach for proponents. The PMO-led process supports a thorough, timely, and integrated assessment of a project and provides meaningful opportunities for participation by Indigenous Nations, proponents, local governments, and provincial agencies.

For major mines, all amendment applications are managed by the MMO. Technical reviews of applications are conducted by the TO group, which includes the Environmental Geoscience, Geotechnical Engineering, and Reclamation specialist teams. The review processes, which can be limited to MMO or which can be expanded to include multiple agencies, is lead either by a TO project manager, for small applications, or the PMO, for large applications.

### **2019 Permitting Highlights**

- ▶ Issued 43 *Mines Act* permit amendments for major mines across B.C., participated in environment assessment reviews of seven projects, and coordinated mine review committees for 15 projects
- ▶ Issued 504 *Mines Act* permits or permit amendments for regional mines across B.C.
- ▶ Updated the JAIR guidance document for major mine permit amendment applications in conjunction with the Ministry of Environment and Climate Change Strategy (ENV). This document provides detailed information requirements that mine proponents can use to prepare high quality applications
- ▶ Developed and published the Mineral and Coal NoW Application Companion document to help mineral exploration proponents prepare high quality applications
- ▶ Developed and published the BC Placer Mining Best Management Practices Technical Guide to assist placer miners in conducting environmentally responsible and safe mining activities
- ▶ Reviewed annual reports for tailings storage facilities, waste rock dumps and pit walls
- ▶ Contributed to the organization of the Annual BC/MEND Metal Leaching/Acid Rock Drainage (ML/ARD) Workshop, which was attended by approximately 200 participants
- ▶ Contributed to the organization of the annual B.C. Technical and Research Committee on Reclamation's Mine Reclamation Symposium which was attended by over 188 delegates

## **Collaboration with Indigenous Nations**

EMLI is committed to transforming its relationship with Indigenous peoples, in alignment with the Province's passing of the *Declaration on the Rights of Indigenous Peoples Act (Declaration Act)* in November 2019. EMLI works collaboratively with Indigenous Nations throughout the full lifecycle of a mine to ensure that the interests of Indigenous Nations are considered in the Province's decision-making processes. The Province also encourages mining proponents to engage Indigenous peoples early in the project planning stages and to build ongoing, strong relationships throughout the life of mining projects.

Through the Economic and Community Development Agreement program, the provincial government shares mineral tax revenues with affected Indigenous Nations on major mines to support the socio-economic priorities of those Nations.

## Spotlight: Mines Compliance Management Forum

In June 2019, EMLI created and hosted a Mines Compliance Management Forum (the Forum). The purpose of the Forum was to create an opportunity for Indigenous Nations throughout B.C. to come together with multiple government agencies to build stronger understanding and relationships related to mining compliance. The Forum utilized a ‘peer-to peer’ approach, where expert Indigenous Nation representatives lead discussions through a series of panel conversations to examine the challenges and opportunities that exist for enhancing relationships and building a more thoughtful and effective partnership for mining oversight in British Columbia.

*The agreement with Tse Keh Nay (TKN) (Tsay Keh Dene Nation, Takla Nation, and Kwadacha Nation) established a collaborative review process and collaborative decision-making process between TKN and the Province for the review of the Kerness Underground Mine Throughput Amendment. The agreement was successfully implemented during the review of the Amendment and helped facilitate an efficient and timely review.*

The Forum brought together members from 22 Indigenous Nations and representatives from six natural resource sector ministries for 1.5 days of discussion. The key learnings and themes from the Forum related to increased communication, engagement and funding as ways to better support increased collaboration with Indigenous Nations and to facilitate Indigenous involvement in mining compliance.

A key follow-up to the Forum was EMLI’s development of policy and procedures for engaging Indigenous groups in compliance activities, to support consistent and sustained opportunities for post-permitting engagement. This guidance provides inspectors and Indigenous representatives with a framework for engagement opportunities to support a range of interests; ensures a base level of education about the mining industry and compliance activities; and establishes requirements and procedures for Indigenous Nation representatives who may be accompanying mine inspections.

## Health and Safety

The establishment of MHSE has enhanced EMLI’s health and safety capacity and effectiveness to protect workers and the public and allowed the formation of a Health and Safety Branch that is focused on improving health and safety at all mines.

Health and Safety Branch staff are involved in or responsible for the review, development, education, compliance verification, and enforcement of regulations established by the *Mines Act* and the Code. Branch staff focus on the anticipation, recognition, evaluation, and control of risks associated with mining activities to prevent incidents that may affect the health and safety of workers or damage equipment or infrastructure. Risks from mining



activities are varied and the branch has inspectors that address the chemical, biological, and physical hazards that can be encountered at mines.

### ***The Health and Safety Branch is responsible for:***

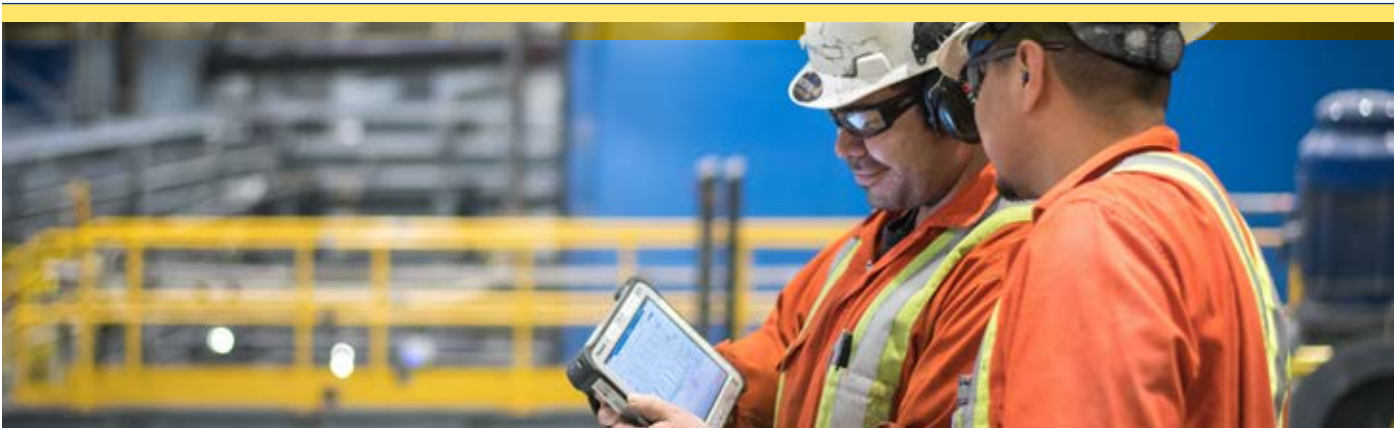
- Conducting mine inspections to enforce compliance with the regulatory requirements
- Conducting reviews of site-specific plans and programs
- Providing resources, guidance, and education
- Leading or assisting in research and development of standards, policy, and regulation
- Participating in technical reviews of proposed mining projects, on Mine Development Review Committees, and investigations
- Providing advice to the Chief Inspector of Mines on variance requests
- Conducting exams and issuing certifications for: shiftboss, fireboss, certificates of competencies, blasters, mine rescue and supervisors

The Health and Safety Branch works to increase the effectiveness of available resources, improve planning and execution, provide proper coverage and delivery of the Branch Service Plan and improve safety performance. To track effectiveness, the Health and Safety Branch has developed key performance indicators for mine inspectors which include requirements and metrics regarding planning, inspections, compliance verification, training, dangerous occurrences, and other reports.

In 2019, revisions to the planning process and discipline integrated planning between the Health and Safety Branch and other groups in EMLI resulted in improvements to inspection planning and regulatory oversight.

### ***2019 Health and Safety Highlights***

- The Ministry undertook a project to revise and modernize the Ministry's Mine Emergency Management Plan
- The Branch continued to provide regulatory expertise and oversight for the development and implementation of requirements for autonomous and semi-autonomous mining equipment to be operated in surface and underground operations
- The Branch led the development of and supported the Code Review process for proposed updates to HSRC Section 2.13 regarding the adoption of Workplace Hazardous Materials Information System (WHMIS) 2015
- With the support of a Coop student completing a Master of Science degree in Occupational and Environmental Hygiene at the UBC School of Population and Public Health, the Branch participated in a project that contributes to the understanding of occupational exposure to hydrogen sulphide (H<sub>2</sub>S) at mines in B.C.



## Spotlight: Health and Safety Staffing

The Branch developed three new health and safety director positions for engineering, major mines, and specialists and hired five health and safety inspectors into new positions. This included a health and safety specialist who joined a team focused on improving effectiveness and efficiency in the Branch.

The new Engineering Group reports to the Health and Safety Director, Engineering and is comprised of the Electrical Team, Mechanical Team, and an Engineering Specialist.

The Specialist Group reports to the Health and Safety Director, Specialists and is comprised of the Occupational Health Team, Ergonomics Team, Emergency Preparedness Team and Training Team.

The Major Mines Group reports to the Health and Safety Director, Major Mines and is comprised of health and safety inspectors that focus on major mines across the province.

## Certifications

The *Mines Act* states that every person employed at a mine must be under the daily supervision of a person who holds a valid and appropriate certificate as required by the regulations of the Code. Re-examinations are required every five years for valid permanent certificate holders. This is to ensure that mine site supervisors have up-to-date knowledge of the Code.

When a mine has more than six people in an active open-pit or underground mine, supervision by a person with a shiftboss certification is required. Fireboss certification is required to supervise people in underground coal mines.

Mine rescue certifications require individuals to complete approved training and pass a written and practical skills exam to demonstrate one's knowledge in rescue training. EMLI certifies miners in underground mine rescue and surface mine rescue.

Blasting certification is required to perform blasting on a mine site in B.C. Blasting certificate types include basic, exploration, surface, underground, underground coal (shotfirer), electrical blasting, and general, which includes all categories except underground coal.



Certificate	Class	Quantity
Coal Mine Manager	Second Class	1
Shiftboss	Surface	56
	Underground	18
	Fireboss	2
Supervisor	Surface & Underground	2,144
Blasting	Surface and Underground	231
Mines Rescue	Underground	85
	Surface	231
<b>Total Certificates Issued</b>		<b>2,768</b>

## Injury Rates

Mining is one of the safest heavy industries in B.C., and EMLI is committed to protecting mine workers through minimizing health and safety risks. WorkSafeBC data indicates the 2019 total estimated injury rate for mines in B.C. was 1.2 claims per 100 person years of employment, which is a small increase over the 2018 rate of 1.1. The increase is attributed to increased rates in the quarries sector.

The graph in Figure 1 outlines the injury rate for the mining industry in B.C. over the past 10 years; the unit for injury rates is the number of claims per 100 person years of employment. Note that rates are adjusted on an ongoing basis to represent new and ongoing claims data.

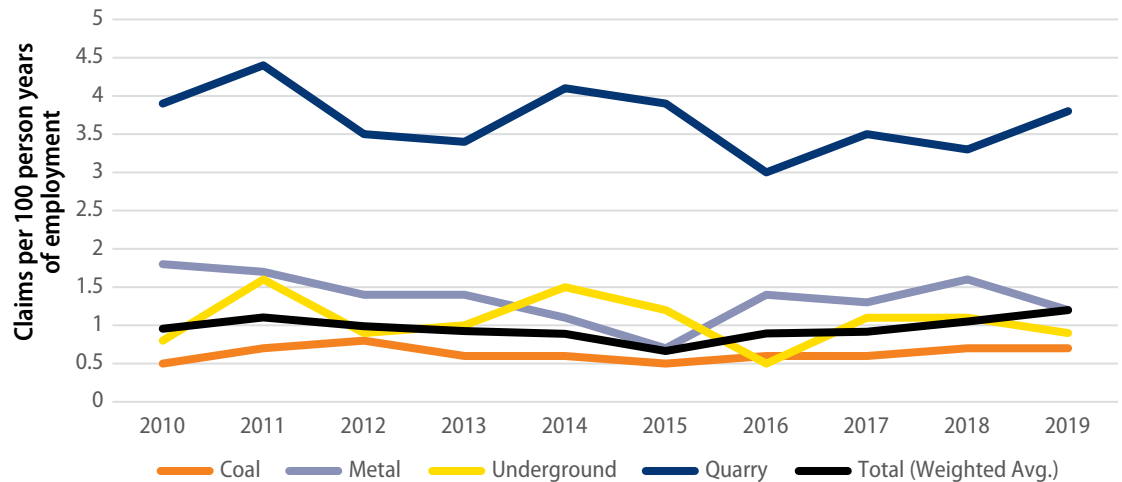


Figure 1: Injury Rates for Open-Pit Coal, Open-Pit Metal, Underground Mines, and Quarries in B.C., 2010-2019

## Fatality Rate

The fatality rate at B.C. mines has remained relatively low over the past two decades. There were no mining-related fatalities in 2019.

## Competitions and Awards

Many mining companies throughout B.C. not only meet the applicable regulatory requirements but also voluntarily and consistently exceed them. Through their efforts and those of workers and provincial government staff, mining continues to be one of the safest heavy industries in B.C.

### Provincial Mine Rescue & First Aid Competition

EMLI supports the Provincial Mine Rescue & First Aid Competition to ensure a high level of mine rescue competence. The competition has been held annually since the 1950s and enables B.C. mines to maintain consistent standards of training and procedures. The competition brings together mine rescue teams from across B.C. and tests their emergency response and rescue abilities in a one-day event in either surface or underground competitions. This prepares mines with the ability to provide mutual aid to one another in the event of an emergency.

Williams Lake hosted the 64<sup>th</sup> annual competition in June 2019. EMLI staff and industry personnel judged the competitions and congratulate all the winners.

Competition	Trophy	Task	Winning Mine
Three-Person First Aid Competition	Three-Person First Aid Trophy	Best-Three Person Team	Line Creek Operations
	Kathy Lofstrom Memorial Trophy	Best Coach for Three-Person First Aid	Sandra McRae – Line Creek Operations
Surface Mine Rescue	Ron Brow Memorial Trophy	Best Extrication for Surface Team	Line Creek Operations
	Maurice Boisse Memorial Trophy	Best Bench for Surface Team	Fording River Operations
	East Kootenay Mines Industrial Safety Association Trophy	Best Written for Surface Team	Line Creek Operations
	East Kootenay Mines Industrial Safety Association Mine Rescue Memorial Trophy	Best Surface Team Rope Task	Highland Valley Copper
	North Central South Zone First Aid Trophy	Best First Aid by Surface Team	Highland Valley Copper
	Levitt-Safety Fire Trophy	Surface	Highland Valley Copper
	HVC Highest Non-Aggregate Points Trophy:		Line Creek Operations
	Overall Surface Mine Rescue Winner		Line Creek Operations
Underground Mine Rescue	Best Bench Technician Trophy		Brandon Moe – New Afton
	USWA Mine Mill Trophy	Best Underground Coordinator	Brandon Moe – New Afton
	Richard Booth Award	Best Written for Underground Team	Myra Falls
	Sullivan Cup	Best First Aid by Underground Team	New Afton
	Barry Abbott Memorial Trophy	Best Underground Practical Skills	Silvertip
	Best Performance in Underground Smoke		New Afton
	Keith Bracewell Memorial Award	Best Obstacle and Recovery	Myra Falls
	Levitt-Safety Fire Trophy	Underground	Myra Falls
	Overall Underground Mine Rescue Winner		Myra Falls

### ***National Western Region Mine Rescue and First Aid Competition***

EMLI also supports the Biennial National Western Region Mine Rescue and First Aid Competition in Fernie. Fernie was host to the first Mines Rescue competition held in B.C. on July 1, 1915. This competition brings together the top two winning teams from across the western regions of Northern America. 2019 had teams competing from British Columbia, Yukon, Northwest Territories, Nunavut, Alberta, Saskatchewan, and Wyoming, USA. Teams from B.C. won the Underground First Aid competition, and the Surface, Extrication, Practical Skills and written competitions.

## Mine Safety Awards

The Mine Safety Awards were established in 1961 to recognize the excellent safety records of mines in B.C. EMLI and the mining industry, workers, and unions continue to be dedicated to health and safety. The award categories have expanded over the years to include three competitions (open pit mine and quarry awards, underground awards, and special commendations and awards) and eight different awards. The 58<sup>th</sup> annual Mine Safety Awards ceremony took place in Victoria to honour mining operations for their health and safety accomplishments. The winners noted below accumulated 15,000+ worker and/or contractor hours with the lowest injury-frequency rate during 2019. The Certificate of Achievement winners had an injury frequency rate of zero.

Class	Competition	Company	Mine
Open Pit Mine and Quarry Awards	Certificate of Achievement	Barrick Gold Inc.	Nickel Plate Mine
		Certain Teed Gypsum Canada Inc.	Windermere Mining Operation
		Mainland Construction Materials	Jamieson Quarry
		Peace River Coal Inc. West Ridge Quarries Ltd	Trend-Roman Mine
	Stewart/O'Brian Safety Award	Baymag Inc.	Mt. Brussilof Mine
		Polaris Materials	Orca Sand and Gravel
	Edward Prior Award	Conuma Coal Resources Ltd.	Wolverine
John Ash Award	Teck Coal Ltd.	Fording River Operations	
Underground Mine Awards	Small Underground Mines Award	Not awarded	
	Large Underground Mines Award	New Gold Inc.	New Afton
		Pretivum Resources	Brucejack Mine

## National Safety Awards (John T. Ryan Safety Trophies)

John T. Ryan trophies are awarded by Mine Safety Appliances Canada Limited as a memorial to its founder. The Canadian Institute of Mining, Metallurgy and Petroleum presents the award to the metal mine, coal mine, and other select mines that experienced the lowest reportable injury frequency per 200,000 employee hours across Canada. For the sixth year in a row, the B.C. and Yukon trophy for the lowest reportable injury frequency in the metal mine category during the 2019 calendar year was awarded to New Gold Inc.'s New Afton Mine. EMLI commends New Afton for this achievement, and for their commitment to safety.

## Compliance and Enforcement

The Ministry is committed to ensuring that B.C. remains a leader in mining regulation and oversight, while enhancing responsible resource development and strengthening Indigenous Nations' involvement in B.C.'s mining sector.

EMLI's regulatory authority applies to all metal mines, including precious and base metal mines, coal mines, industrial mineral (e.g. silica, limestone) mines, rock quarries, sand and gravel (aggregate) operations, and placer mines.

In 2017, the Ministry established a dedicated Compliance and Enforcement Branch to support ongoing improvements in compliance oversight, enhance consistency and coordination in mining compliance, and to ensure that the expertise is in place to investigate serious incidents and when necessary hold industry accountable for meeting regulatory requirements.

EMLI strives to set regulatory requirements that are clear, practical and enforceable. EMLI aims to achieve high rates of compliance through proactive promotion, education and communication strategies with mine owners, operators and permittees.

Compliance verification is carried out by performing inspections, reviewing permittees' plans and reports, and responding to complaints or reports of suspected non-compliance. EMLI enforces compliance through issuing orders, warnings, notices, administrative monetary penalties, and investigating and recommending court prosecutions.



*Photo courtesy of  
Sego Resources Inc./AME*



## Compliance Verification and Mine Inspections

EMLI staff regularly conduct inspections, meetings, investigations, and training to verify that mines are complying with the *Mines Act*, the Code, other codes and standards such as the Canadian Electrical Code, and site-specific *Mines Act* conditions. In 2019, EMLI conducted 1733 inspections, at mine sites across the province.

The graph in Figure 2 outlines the yearly inspections for the mining industry in B.C. over the past 10 years.

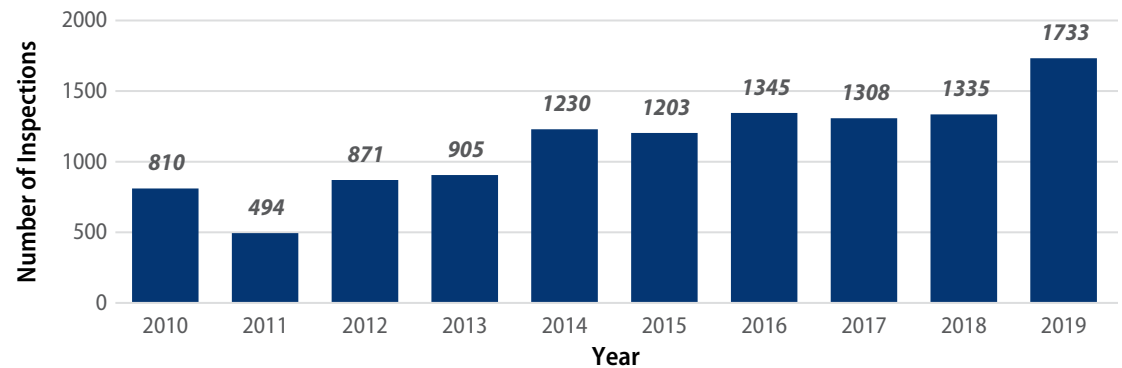


Figure 2: Number of Mine Inspections, 2010-2019

In accordance with the *Mines Act*, inspection reports are provided to the mine manager within seven days. Mine managers have 15 days after receiving the report to respond to the inspector. During 2019, EMLI focused on improving inspection report times and mine manager response times. By the end of 2019, the inspection report issuance time averaged under seven business days and the mine manager response time averaged under 40 business days. The Ministry continues to work with mine managers to reduce their response time to inspection reports.

## Enforcement Activities

The Compliance and Enforcement Branch includes the Mines Investigation Unit, a team of specialised investigative professionals that undertakes investigations pursuant to Section 7 of the *Mines Act* as well as other investigations involving non-compliances with the regulatory requirements. The Mines Investigation Unit seeks to determine what happened, why an incident occurred and how similar incidents can be prevented in the future. The findings may be presented to the Chief Inspector of Mines with recommendations for prevention of similar incidents, to Crown Counsel for consideration of *Mines Act* charges, or to a delegate of the Chief Inspector of Mines for consideration of an Administrative Monetary Penalty (AMP).

The AMP program allows EMLI to impose a financial penalty on any individual or corporation that contravenes prescribed provisions of the regulatory requirements. This compliance and enforcement tool is efficient, cost-effective, and flexible. In 2019, the first two AMPs were imposed on corporations.

If a person contravenes a provision of the regulatory requirements or an order, and evidence is supportive, charges may be recommended for approval by Crown Counsel. In 2019, all files referred to Crown Counsel by MIU resulted in approval for *Mines Act* charges. During 2019, two court proceedings concluded, and both resulted in guilty pleas.

Visit [mines.nrs.gov.bc.ca/enforcement-actions](https://mines.nrs.gov.bc.ca/enforcement-actions) to view EMLI AMPs and prosecutions.

## Reclamation

EMLI is continuing work to update the B.C. Mine Reclamation Security Policy for major mines. The policy will provide clear guidance to industry with regards to reclamation security and ensure that sufficient security is held to safeguard B.C. taxpayers should companies be unwilling, or unable, to undertake reclamation themselves.

The policy is being developed in response to an audit conducted by the Office of the Auditor General of British Columbia on the compliance and enforcement of the B.C. mining sector. The policy will be informed by recommendations provided by consultants such as Stantec<sup>2</sup>, Ernst and Young<sup>3</sup> contracted by EMLI, reclamation security practices in other jurisdictions, as well as input from Indigenous Nations, industry, the public, and non-governmental organizations.

### Reclamation Security Table

The following table provides a summary of the estimated reclamation liability for major mines and the reclamation security held by EMLI. The table includes information available as of December 31, 2019. Mine permits may contain schedules for placing additional security that are not reflected in the table.

Mine	Owner (2018)	Total Bond Amount (\$)	Liability Estimate (\$)	Differential (\$)
Elk Valley (Elkview, Fording River, Line Creek, Coal Mountain, Greenhills, Upper Elk Valley)	Teck Coal Ltd.	891,410,000	1,404,810,000	513,400,000
Sage Creek	Sage Creek Coal Ltd.	1,000	1,000	–
Tent Mountain	Luscar Ltd.	58,500	–	–
Sukunka	Tailsman Energy Inc.	50,000	67,500	17,500
Mt Speiker	Canadian Natural Resources Ltd.	10,000	10,000	–
Benson Mt.	Netherlands Pacific Mining Co. Ltd.	–	5,000	5,000
Willow Creek	Conuma/Willow Creek Coal Partnership	12,000,000	20,911,370	8,911,370
Quintette	Teck Coal Limited	20,083,200	27,020,000	6,936,800
Bullmoose	Teck Coal Limited	1,000,000	1,000,000	–
Benson Mt.	Wolf Mountain Coal Ltd.	–	20,000	20,000
Mt. Klappan	Fortune Coal Ltd.	25,000	–	–
Quinsam	Quinsam Coal Corp.	3,004,447	12,466,000	9,461,552
Basin Coal	Basin Mine Ltd. Partnership	276,547	275,000	–
Brule	Conuma /Brule Coal Partnership	3,350,000	22,831,542	19,481,542
Wolverine	Conuma /Wolverine Coal Partnership	11,500,000	28,637,718	17,137,718
Trend-Roman	Peace River Coal Ltd.	73,900,000	79,194,978	5,294,978
Endako	Thompson Creek Mining Co.	15,345,700	42,608,000	27,262,300
Pinchi	Teck Resources Ltd.	2,000,000	2,000,000	–

2 Stantec Consulting Ltd., 2016, Policy and process review for mine reclamation security, Prepared by Stantec Consulting Ltd., Sidney, BC. Prepared for the British Columbia Ministry of Natural Gas Development and Ministry of Energy and Mines, Government of British Columbia, Victoria, BC. 67 pg.

3 Ernst & Young LLP, 2017, EY report & recommendations for BC's mine reclamation financial security policy. Prepared by Ernst & Young LLP, Vancouver, BC. Prepared for British Columbia Ministry of Energy and Mines, Victoria, BC. 41 pg.

Mine	Owner (2018)	Total Bond Amount (\$)	Liability Estimate (\$)	Differential (\$)
Granisle	Glencore Canada Corp.	161,522	926,667	765,145
Island Copper	BHPBilliton Base Metals.	4,226,624	4,637,000	410,375
Kitsault	Avanti Kitsault Mine Ltd.	1,770,000	1,400,000	–
Highland Valley Copper	Teck Highland Valley Copper Ltd.	266,566,000	337,097,000	70,531,000
Brenda	Glencore Canada Corp.	5,000,000	33,000,000	28,000,000
Cassiar	Cassiar-Jade Contracting Inc.	600,000	530,000	–
Myra Falls	Nyrstar Myra Falls Ltd.	104,019,303	127,265,012	23,245,709
Copper Mountain	Copper Mountain Mining Corp.	20,983,554	14,800,000	–
Bull River	Bul River Mineral Corp.	491,511	470,747	–
Bell	Glencore Canada Corp.	25,100,000	14,910,142	–
Gibraltar	Gibraltar Mines Ltd.	50,000,000	41,300,000	–
Giant Nickel	Barrick Gold Inc.	27,000	2,749,667	2,722,667
Silvana	Klondike Silver Corp.	150,000	175,000	25,000
Craigmont	Huldra Properties Inc.	700,000	700,000	–
Dolly Varden	Dolly Varden Mines Ltd.	6,000	6,000	–
Beaverdell	Teck Resources Ltd.	10,000	500,000	490,000
Mt. Copeland	KRC Operators	3,484	3,484	–
Sullivan	Teck Resources Ltd.	22,500,000	22,500,000	–
HB Mine	Teck Resources Ltd.	10,000	10,000	–
Dankoe	439813 BC Ltd.	10,000	–	–
Boss Mountain	Glencore Canada Corp.	30,000	1,000,000	970,000
Afton-Ajax Mine	KGHM Ajax Mining Inc.	350,000	350,000	–
Equity	Goldcorp Canada Ltd.	95,003,000	95,003,000	–
Table Mountain	Cassiar Gold Corp.	264,444	1,675,789	1,411,345
Mosquito Creek	Mosquito Consolidated Gold Mines Ltd.	5,000	437,119	432,119
Ladner Creek	New Carolin Gold Corp.	256,250	660,000	403,750
Scottie Gold / Summit Lake	Red Eye Resources Ltd.	15,000	–	–15,000
Baker	Dupont Canada Ltd.	15,606	165,681	150,075
Goldstream	Barkerville Gold Mines Ltd.	200,000	1,125,000	925,000
Venus	United Keno Hills Mines Ltd.	7,000	7,000	–
Taurus	Cassiar Gold Corp.	10,000	383,698	373,698
Silence Lake	Dimac Resources Corp.	10,000	10,000	–
Mt. Brussilof Magnisite	Baymag Mines Co. Ltd.	15,101	824,413	809,311
Ashlu Gold	Osprey Mining and Exploration Ltd.	10,000	160,000	150,000

Mine	Owner (2018)	Total Bond Amount (\$)	Liability Estimate (\$)	Differential (\$)
Four-J / Lussier	Georgia Pacific Canada Ltd.	20,000	45,930	25,930
Union	Sumac Resources Ltd.	5,000	1,100	–
Blackdome	J- Pacific Gold Inc	100,000	130,000	30,000
Nickel Plate	Barrick Gold Inc.	1,671,754	95,284,333	93,612,579
Lawyers	Cheni Gold Mines Ltd.	1,766	14,400	12,634
Johnny Mountain	Skyline Gold Corp.	562,310	5,102,201	4,539,890
Premier	Boliden Canada Ltd.	10,000,000	14,650,000	4,650,000
Parson Barite	Sherritt International Corp.	10,000	83,680	73,680
Candorado	Sunrise Resources Ltd	–	3,000,000	3,000,000
Samatosum	First Quantum Minerals Ltd.	7,800,000	7,266,667	–
Barrier Feldspar	Kanspar Industries Inc.	20,000	–	–
Golden Bear	Goldcorp Canada Ltd.	210,000	73,200	–
Horse Creek Silica	HiTest Sand Inc.	125,000	167,609	42,609
Shasta	Sable Resources Ltd.	54,147	1,110,000	1,055,852
Snip	Skeena Resources Ltd.	2,425,000	1,813,201	– 611,799
CIL	Clayburn Industries	1,000	5,000	4,000
Cirque	Cirque Operating Corp.	220,000	50,000	–
Eskay Creek	Barrick Gold Inc.	13,005,256	6,707,947	–
QR	Barkerville Gold Mines Ltd.	8,750,000	11,368,174	2,618,174
Elk/Siwash	Gold Mountain Mining Corp.	150,000	60,672	–
Mount Polley	Mount Polley Mining Corp.	31,350,611	32,770,061	1,419,450
Huckleberry	Huckleberry Mines Ltd.	32,000,000	46,000,000	14,000,000
Kemess South	AuRico Gold Inc.	47,725,000	45,200,000	–
Bralorne	Bralorne Gold Mines Ltd.	1,865,000	12,300,000	10,435,000
May Mac (formerly Bow Mines)	Golden Dawn Minerals Inc.	50,000	94,999	44,999
Ainsworth Mill	Bluebird Mining Ltd.	5,000	250,000	245,000
Lumby Mine	Saddle Mountain Minerals Ltd.	5,000	5,000	–
Max Molybdenum	Discovery Ventures Inc.	730,000	1,313,403	583,403
New Afton	New Gold Inc.	13,897,000	24,839,355	10,942,355
Galore Creek	Galore Creek Mining Corporation	1,167,000	1,167,000	–
Ruby Creek	Global Drilling Solutions Inc.	100,000	50,000	–
Tulsequah	Chieftain Metals Inc.	692,531	1,200,000	507,468
Zip Mill	1086359 BC Ltd.	235,000	202,225	–

Mine	Owner (2018)	Total Bond Amount (\$)	Liability Estimate (\$)	Differential (\$)
Lexington-Grenoble	1086359 BC Ltd.	215,000	324,558	109,558
Yellowjacket	African Queen Mines Ltd.	150,000	105,300	–
Mount Milligan	Terrane Metals Corp.	45,100,000	41,868,000	–3,232,000
Dome Mountain	Gavin Minerals Ltd.	600,000	13,312,503	12,712,503
Bonanza Ledge	Barkerville Gold Mines Ltd.	8,300,000	8,326,883	–
Treasure Mountain	Huldra Silver Inc.	505,100	500,000	–
Red Chris	Red Chris Operating Corp.	12,000,000	17,055,921	5,055,921
Yellow Giant (Tel)	Banks Island Gold Ltd.	214,315	2,273,123	2,058,808
Silvertip	Coeur Silvertip Holdings Ltd.	18,179,000	16,360,988	–
Brucejack	Pretium Resources inc.	31,700,000	17,993,224	–
<b>TOTAL</b>		<b>1,924,457,586</b>	<b>2,777,087,184</b>	<b>852,629,597</b>

