



# TOWARDS SUSTAINABLE MINING

## 2015 PROGRESS REPORT



The Mining Association  
of Canada | L'association minière  
du Canada



Towards Sustainable Mining  
Vers le développement minier durable

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Cover photo: Reclamation activities at Suncor's oil sands operation near Fort McMurray, Alberta.





# INTRODUCTION



## ABOUT TOWARDS SUSTAINABLE MINING

Towards Sustainable Mining (TSM) is an award-winning performance system that helps mining companies evaluate and manage their environmental and social responsibilities. It is a set of tools and indicators to drive performance and ensure that key mining risks are managed responsibly at participating mining and metallurgical facilities. Mining companies that participate in the TSM initiative demonstrate their strong commitment to responsible mining. By adhering to the TSM Guiding Principles, mining companies exhibit leadership by:

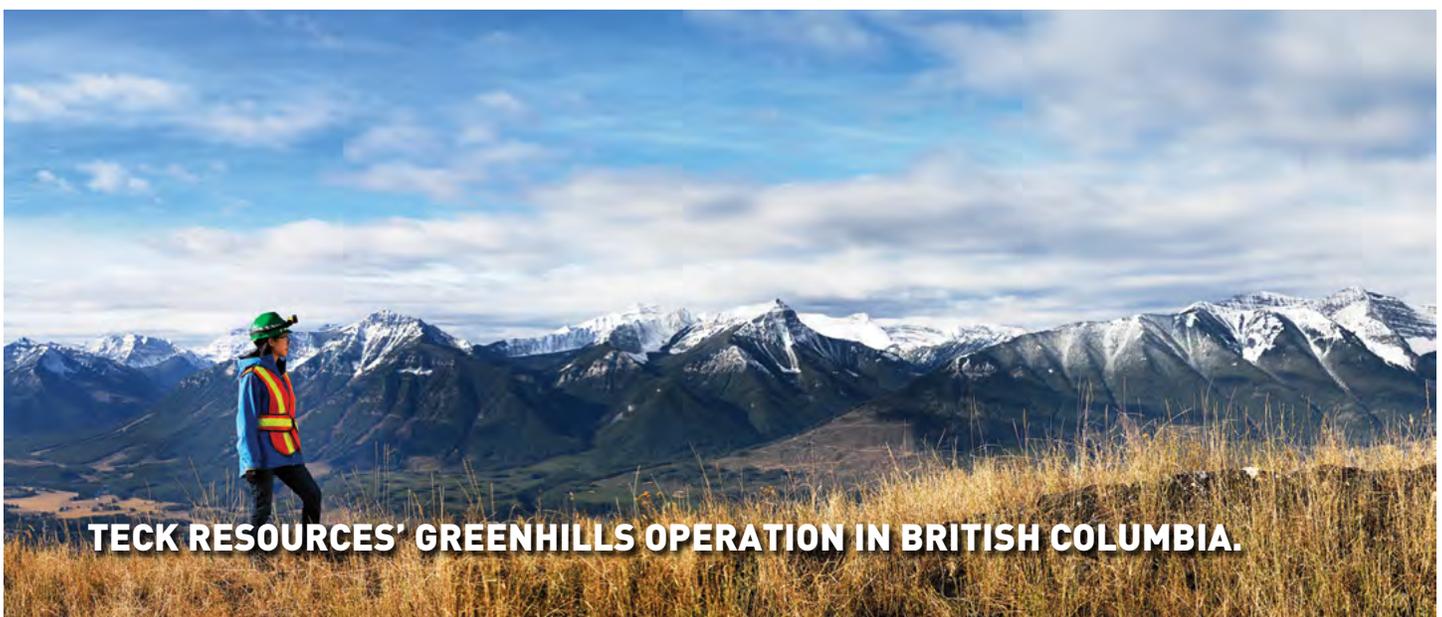
- Engaging with communities
- Implementing world-leading environmental practices
- Committing to the safety and health of employees and surrounding communities

Established in 2004 by the Mining Association of Canada (MAC), TSM's main objective is to enable mining companies to meet society's needs for minerals, metals and energy products in the most socially, economically and environmentally responsible way. At its core, TSM is:

**Accountability:** Participation in TSM is mandatory for all MAC members, and the Mining Association of British Columbia and the Québec Mining Association are currently implementing TSM for their members. Assessments are conducted at the facility level where the mining activity takes place - the only program in the world to do this in our sector.

**Transparency:** Mining companies publicly report their facilities' performance against 23 indicators in the annual *TSM Progress Report*. Results are externally verified every three years.

**Credibility:** TSM is overseen by an independent Community of Interest (COI) Advisory Panel. This multi-stakeholder group helps mining companies and communities of interest foster dialogue, improve the industry's performance and shape the TSM initiative for continual advancement.



## TSM GUIDING PRINCIPLES

As members of the Mining Association of Canada, our role is to responsibly meet society's needs for minerals, metals and energy products. To achieve this, we engage in the exploration, discovery, development, production, distribution and recycling of these products. We believe that our opportunities to contribute to and thrive in the economies in which we operate must be earned through a demonstrated commitment to sustainable development.\*

Accordingly, our actions must demonstrate a responsible approach to social, economic and environmental performance that is aligned with the evolving priorities of our communities of interest.\*\* Our actions must reflect a broad spectrum of values that we share with our employees and communities of interest, including honesty, transparency and integrity. And they must underscore our ongoing efforts to protect our employees, communities, customers and the natural environment.

### We will demonstrate leadership worldwide by:

- Involving communities of interest in the design and implementation of our Towards Sustainable Mining initiative.
- Proactively seeking, engaging and supporting dialogue regarding our operations.
- Fostering leadership throughout our companies to achieve sustainable resource stewardship wherever we operate.
- Conducting all facets of our business with excellence, transparency and accountability.
- Protecting the health and safety of our employees, contractors and communities.
- Contributing to global initiatives to promote the production, use and recycling of metals and minerals in a safe and environmentally responsible manner.
- Seeking to minimize the impact of our operations on the environment and biodiversity, through all stages of development, from exploration to closure.
- Working with our communities of interest to address legacy issues, such as orphaned and abandoned mines.
- Practising continuous improvement through the application of new technology, innovation and best practices in all facets of our operations.

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\*MAC draws on the 1987 Brundtland Commission definition of sustainable development: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

\*\*We use the term communities of interest to include all of the individuals and groups who have or believe they have an interest in the management of decisions about our operations that may affect them. This includes employees, contractors, Aboriginal or indigenous peoples, mining community members, suppliers, customers, environmental organizations, governments, the financial community, and shareholders.

In all aspects of our business and operations, we will:

- Respect human rights and treat those with whom we deal fairly and with dignity.
- Respect the cultures, customs and values of people with whom our operations interact.
- Recognize and respect the unique role, contribution and concerns of Aboriginal peoples (First Nations, Inuit and Métis) and indigenous peoples worldwide.
- Obtain and maintain business through ethical conduct.
- Comply with all laws and regulations in each country where we operate and apply the standards reflecting our adherence to these guiding principles and our adherence to best international practices.
- Support the capability of communities to participate in opportunities provided by new mining projects and existing operations.
- Be responsive to community priorities, needs and interests through all stages of mining exploration, development, operations and closure.
- Provide lasting benefits to local communities through self-sustaining programs to enhance the economic, environmental, social, educational and health care standards they enjoy.



## MESSAGE FROM THE CHAIR OF THE TSM GOVERNANCE TEAM AND MAC'S PRESIDENT AND CEO

Welcome to the *2015 TSM Progress Report*. We are pleased to present a detailed look at our members' environmental and social performance for 2014.

Before we dive into the performance results of 2014, we want to highlight a major milestone for TSM. In November 2015, the Finnish Mining Association (FinnMin) announced that it has adopted TSM and is now working towards implementing the initiative for its members. This is the first time TSM has been adopted by a mining association outside of Canada. FinnMin's adoption of TSM is part of a larger commitment of MAC's to freely share TSM with other countries seeking tools to improve the environmental and social performance of their mining industry, including engagement with civil society and enhanced transparency and accountability.

Last year was another exciting year for TSM. We celebrated TSM's 10-year anniversary, which means that we now have a decade worth of results that demonstrate TSM's success in driving performance improvement at mining operations across Canada and beyond. In 2014, MAC members continued to demonstrate overall high TSM performance results in all areas. Some highlights include:

- There was a notable lift in results for TSM's newest protocol, biodiversity conservation management. In 2014, 67% of facilities achieved a Level A or higher for biodiversity conservation reporting, compared to 55% in 2013.
- For the first time in the Aboriginal and community outreach protocol, more than 90% of facilities achieved at least a Level A, with the majority of facilities achieving a Level AAA.
- Overall progress was made in the energy use and GHG emissions management protocol. In 2014, 75% of facilities reported a Level A or higher for having a comprehensive energy use and GHG emissions management system – an increase of 15% year-over-year for this indicator.

Additionally, for the first time, four facilities located abroad qualified for the TSM Leadership Award for achieving a Level A or higher across all indicators for each of TSM's six protocols. This is a significant achievement and further proof that TSM—a made-in-Canada CSR standard—is gaining traction globally.

On a more sombre note, 2014 was also a year that saw a major tailings failure at the Mount Polley Mine in British Columbia. The incident was taken seriously by the whole of industry, and MAC and its members proactively initiated an internal review of its tailings management program immediately following the breach—well before the cause of the breach was even known.

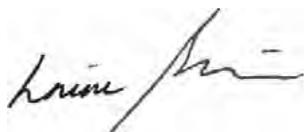
Ultimately, the Independent Expert Engineering Investigation and Review Panel, appointed by the BC Government, determined that the cause was a result of a design flaw and not a management oversight, and therefore, beyond the current scope of MAC's TSM requirements for tailings. In its report, the Panel also recognized TSM as best practice and went so far as to recommend that all mining operations in BC be required to adhere to TSM's Tailings Management Protocol, or commit to an equivalent program with a similar audit component. Despite this endorsement, MAC and its members believe that best practice can always be improved, and there was merit in determining if there were lessons that could be learned from this incident. As a result, in March 2015, MAC's Board of Directors undertook a bold step by commissioning an independent task force to review TSM's tailings management protocol and MAC's tailings guides. The task force includes engineering and tailings experts, and civil society and First Nations representatives. Over the course of 2015, the group will develop recommendations for the MAC Board on potential enhancements, which will be informed by the report on the Mount Polley breach.

It is MAC members' collective goal that incidents like this never happen. In fact, one of the main drivers behind the development of TSM in the late 1990s was to ensure tailings dam safety through strong tailings management practices. If there are learnings from the Mount Polley breach, we will work tirelessly to know them and incorporate them into TSM.

TSM is a dynamic program that is continually evaluated to foster continuous progress in the management of key mining risks. The external, multi-stakeholder Community of Interest (COI) Advisory Panel helps us achieve this by identifying emerging issues that should be explored for potential incorporation into TSM. In 2014, we began looking at whether and how water management could be incorporated into TSM by examining a new standard for water management systems developed by the Alliance for Water Stewardship. In 2015, the MAC Board of Directors adopted a TSM Framework on Water, which describes our members' commitments to water stewardship. The framework includes 13 commitments that go beyond legal compliance. The adoption of this framework is the first step in looking at how to incorporate water into TSM.

In recent years, MAC has seen an increased interest in TSM from different organizations in Canada and around the world. Both the Mining Association of British Columbia and the Quebec Mining Association have recently adopted TSM and are working with their members on implementation. Internationally, TSM is being recognized for its effectiveness as an industry CSR standard. In November 2014, MAC participated in a green mining seminar in Finland to support the Finnish Network for Sustainable Mining, which helped lead FinnMin to ultimately choose TSM after a three-year process of reviewing other CSR standards. In December 2014, at the invitation of the Canadian embassy and with the support of First Quantum Minerals and Eldorado Gold Corporation, MAC participated in a mine safety summit in Turkey that included a presentation on the safety and health requirements of TSM. These are just a couple of examples of the types of outreach and information sharing we do to promote TSM and how we contribute to the development of best practices in the global mining industry.

We are proud of what the program has helped the industry to achieve so far. We must remain leaders in responsible mining and never lose sight of our role to manage the impacts that mining has on the environment and on communities. As always, we will continue to work with all stakeholders to ensure Canadians can be confident in the mining industry.

Louise Grondin  
Agnico Eagle Mines Limited  
Chair of the TSM Governance Team




Pierre Gratton  
President and CEO  
The Mining Association of Canada

## STATEMENT FROM THE COMMUNITY OF INTEREST ADVISORY PANEL

### INTRODUCTION AND BACKGROUND

The Community of Interest (COI) Advisory Panel was established in 2004 to help MAC members and communities of interest improve the industry's performance, foster dialogue between the industry and its communities of interest and to help advance the goals of the TSM initiative.

The COI Panel is composed of a diverse group of individuals associated with social NGOs (including faith-based groups), the media/communications sector, Aboriginal communities, ENGOs, international development groups, economic/community development organizations, the finance/investment sector, labour/workplace organizations, as well as issue expert advisors. New COI members are invited to join by the current panel members. The Panel also includes industry members appointed by MAC who actively engage in the discussions, provide company insights and help to connect the Panel's work to that of the MAC membership.

### THE YEAR IN REVIEW

#### Impacts of the Mount Polley Tailings Dam Failure

Although there were many issues and activities that are worthy of note for 2014/2015, it was the Mount Polley tailings dam breach that overshadowed all else. Early on August 4, 2014, the perimeter embankment at the Mount Polley copper mine near Likely, in south-central British Columbia, failed catastrophically. The loss of containment was sudden, with no warning. That failure released at least 25 million cubic metres of mine tailings and effluent mixed with storm water into Polley Lake and Hazeltine Creek. The spill finally stopped when it reached Quesnel Lake, a large salmon-spawning fjord-type lake many kilometres away.

While, thankfully, there were no human fatalities, the disaster has, and will continue to have, extraordinary impacts that start locally, but resonate provincially, nationally and internationally. In solely economic terms, it has cost taxpayers and shareholders hundreds of millions of dollars, but more importantly, it has been profoundly disruptive to the affected downstream communities at many levels.

There is much that is still unknown about the long-term impacts of the dam failure, but what is certain is that the industry, and its relationship to the public has been deeply shaken. The public and corporate systems both failed to effectively foresee and prevent this disaster. This inescapable reality has served as a serious wake-up call on all sides about the way we assess and manage risks associated with industrial mining.

The company at the centre of the disaster, Imperial Metals, had recently joined MAC and was just two years into implementing the Towards Sustainable Mining standards, so this event struck the MAC membership and the COI Panel deeply. As a result, the Panel devoted its first meeting of 2015 entirely to investigation of various aspects of the failure (from engineering to community engagement issues) and the MAC Board of Directors initiated a formal independent expert review of related TSM standards and verification systems (the expert task force will issue its report in fall 2015).

At the meeting, the Panel had the opportunity to discuss with a variety of experts what is known about this particular disaster, and the ways in which tailings impoundment risks are currently assessed and managed. We talked about the oversight and accountability mechanisms that need to be strengthened, and how disclosure of risks and management responses could be improved to better inform the public and the financial sector, both of whom have different, yet important, stakes and influence in helping prevent future disasters.

The COI Panel had the chance to hear from technical experts from the BC government's Independent Expert Engineering Investigation and Review Panel, as well as representatives from the Canadian Dam Association and others. There was a clear sense of agreement with the conclusion of the Expert Panel's report that that we must firmly reject any notion that business as usual can continue.

Given that there are many tailings storage facilities in BC and across the country that have been built and managed with similar assumptions and systems as Mount Polley, there is a real sense of urgency to understand the underlying causes of the failure and the most effective means of preventing future disasters. The causes of the failure are complex and must be addressed by a range of engineering, management and regulatory changes. For these reasons, the COI Panel is committed to actively supporting these changes and to communicating progress towards that goal to its networks.

#### **International Links to Sustainable Mining Standards**

Since 2013, the COI Panel and MAC have had various meetings with delegates from Finland who have been interested in exchanging lessons and ideas around multi-sector approaches to improving mining industry performance. In 2013, the Finnish Innovation Fund (SITRA) sent several people to Canada to meet COI Panel members and others engaged with the mining industry.

Partly inspired by the COI Panel, in May 2014, the Finnish Network for Sustainable Mining (NSM) was established to foster cooperation and dialogue between the mining industry and its stakeholders. It provides a platform for sharing information and experiences, and advocates the joint development and introduction of more responsible practices on the basis of tried-and-tested best practices. To this end, the NSM has undertaken a process for adopting and adapting the TSM initiative for use in Finland.

In March 2015, Finnish NSM delegates from indigenous groups, NGOs, communities, industry and government came to Toronto to participate in COI Panel meetings and to exchange views on how to make progress on industry performance and community engagement. It was mutually agreed that this kind of exchange was enriching for all parties and that we should continue to work together towards the common goal of improving mining sector performance and leadership in community accountability.

#### **Québec Mining Association's TSM Commitment**

In the summer of 2014, the Québec Mining Association (QMA) made the decision to adopt the TSM initiative as a requirement for its members, becoming the second provincial mining association to do so following the Mining Association of British Columbia's (MABC) adoption of the initiative in 2011. Representatives from the QMA attended the COI Panel meetings in March 2015 and, along with the Finnish delegates, participated in the discussions around the implications of the Mount Polley tailings dam failure, as well as the opportunities for future actions to advance and refine the goals of TSM.

The MAC COI Panel is encouraged by both the Finnish and QMA commitments, and intends to actively support further interaction and communication with the NSM and the QMA, believing that such collaboration is relevant to the pursuit of the broader social issues related to mining which drive the Panel's agenda.

Initiatives like the NSM and the QMA's commitment are very important as parts of an expanding network of practitioners and stakeholders who help to drive the necessary adaptive and innovative changes within the COI Panel and the TSM system. These kinds of interactions are part of what will keep TSM and the COI Panel relevant to the evolving challenges of the mining sector.

#### **Val-d'Or Community Visit in Fall 2014**

The autumn meeting of the COI Panel in 2014 took place in Val-d'Or, a town situated in the mining belt in northwestern Quebec, a region with an active mining history dating back to the 1930s. The meeting was hosted by Agnico Eagle, and provided opportunities to visit the Goldex mine, the Canadian Malartic gold mine and the town of Malartic, mine tailings reclamation work at the Manitou site, and to meet with a number of largely business-oriented groups in the town of Val-d'Or, as well as at the native friendship centre.

There is a complex and challenging history of Aboriginal relations in this region. As part of the COI Panel's mandate, discussions with the Algonquian communities in the region were requested. Unfortunately, due to unforeseen events in the community, there was limited representation from First Nations. Nevertheless,

the meeting did provide an opportunity to explore the social history of this region, including the Aboriginal communities, and to discuss the challenges involved in building a framework for more effective community and Aboriginal engagement.

### **TSM Results and Progress**

As part of its evolving set of standards and protocols, 2014 was the second year of reporting at the facility level for the two newest protocols, the biodiversity conservation management protocol, and the safety and health protocol. The COI Panel continued one of its primary roles in providing more in-depth feedback on two selected companies who presented and discussed their findings with the Panel, as well as providing input to the ongoing update and review of existing protocols.

It was good to see progress across a number of the indicators, which suggests that the initiative is having some success in creating incentives among MAC members to actively incorporate TSM standards and to improve on the ways these standards are implemented. For example, the number of facilities assessed at a Level A or higher for implementing effective management systems for biodiversity conservation has increased from 39% in 2012 to 52% in 2013 and to 66% in 2014.

In the area of Aboriginal and community outreach, results for effective engagement and dialogue with communities of interest show over 90% of facilities reporting a Level A or higher. Importantly, the percentage of facilities at a Level AAA – the highest possible ranking – for this indicator has increased from 13% in 2006 to 48% in 2014. As noted below, this adoption of the highest standard is important, but should not represent a plateau, as the needs, expectations and learning regarding community engagement are constantly evolving.

For energy use and GHG emissions, nearly 90% of facilities reported a Level A or higher for implementing comprehensive tracking and reporting systems for internal and public reporting.

As previously mentioned, in response to the Mount Polley tailings storage facility disaster, MAC initiated a review of its tailings management program by an independent expert panel, which includes a COI Panel member. The review will assess the TSM initiative and its various indicators and guidance directly related to tailings management: tailings management policy and commitment, tailings management system, assigned accountability and responsibility, annual tailings management review, and an operations, maintenance and surveillance manual. Also included in the review are the appropriate mechanisms for community outreach as part of tailings facility design and management. The review panel will report its findings and recommendations to the MAC Board and the COI Panel in fall 2015.

Panel members have also begun to discuss the challenge of continuous improvement in those cases where we are seeing significant numbers of facilities reaching Level AA and Level AAA performance. It is important to ask if there are ways to improve the standards and, using feedback from both companies and communities of interest, create incentives for further innovation and improvements beyond the standards.

### **Conclusions**

As is often the case, the past year has been marked by both setbacks and progress. The massive dam failure at Mount Polley has provided a serious wake-up call to industry, communities and regulators that the systems we have set up need to be overhauled at various levels to increase the safety to and the confidence of the public.

What can be understood as positive from this calamity is that the profound impacts have not been lost on anyone. This is a moment when industry has had to publicly realize that its systems and those of governments are not adequate to prevent serious accidents that have massive consequences inside and outside the industry. The onus is now on everyone associated with the industry to take advantage of the attention and energy of this moment to make the changes necessary to improve safety and start to regain the public's confidence. The Community of Interest Advisory Panel can and will continue to play an important role in contributing to these changes through our focused exchange of perspectives, concerns and insights with MAC members.



# HOW TSM WORKS



## HOW TSM WORKS

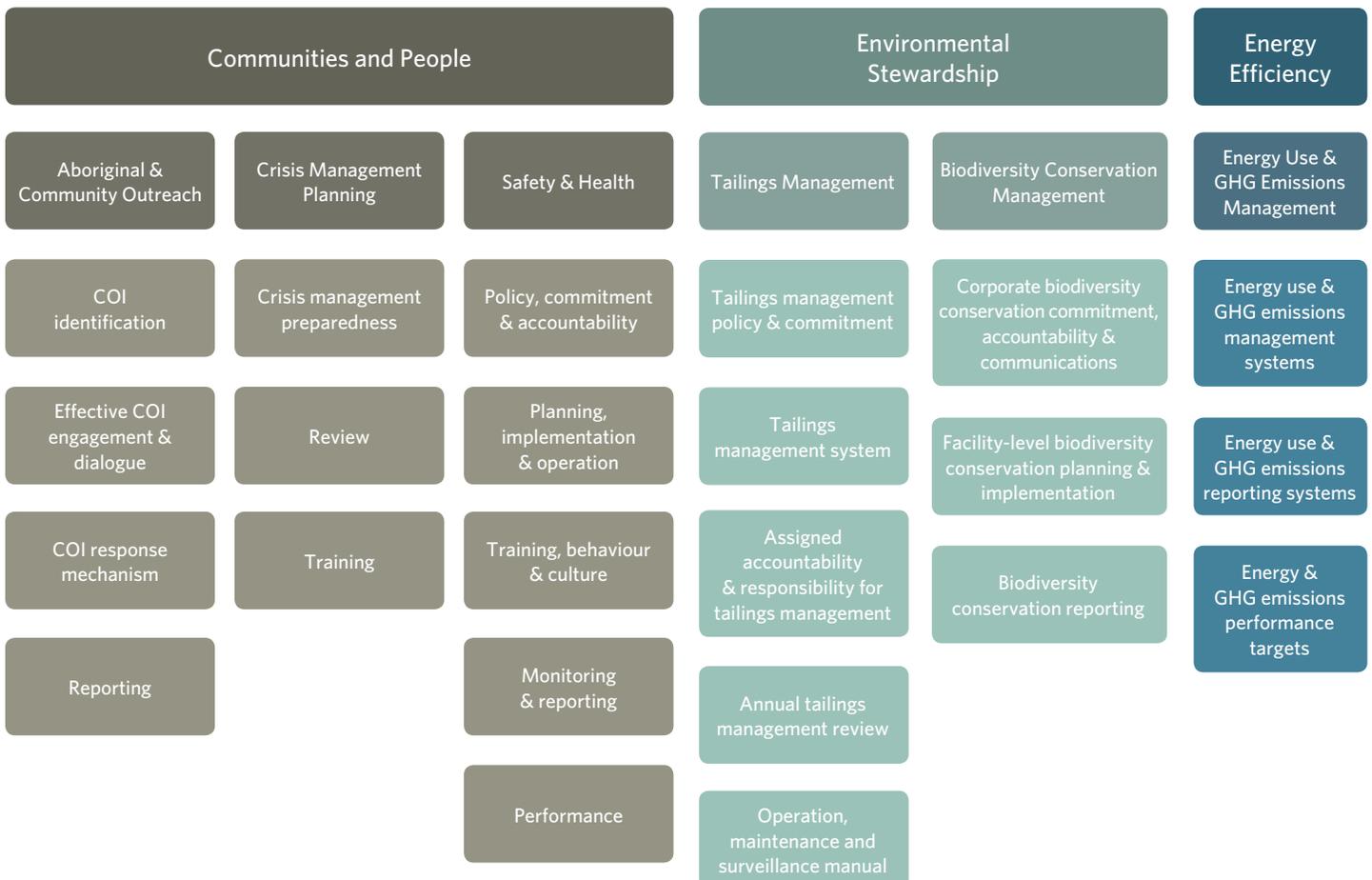
### OUR COMMITMENTS

Mining companies that participate in TSM recognize that their actions must demonstrate a responsible approach to social, economic and environmental performance that is aligned with the evolving priorities of their employees, investors and communities of interest. They have collectively articulated their commitment to responsible mining through the TSM Guiding Principles. The TSM Guiding Principles are at the core of the initiative and represent mining companies' commitments pertaining to community engagement, environmental stewardship, and energy efficiency, with the goal of leaving lasting benefits for communities and future generations.

### WHAT WE MEASURE

To translate commitments into action at the mine-site level, MAC has developed performance protocols that focus on three core areas: communities and people, environmental stewardship and energy efficiency. The performance protocols are designed to help companies build and evaluate their systems and processes for key aspects of mining activity, as well as show Canadians what the industry's current environmental and social performance is and how it can be improved.

## TSM PERFORMANCE INDICATORS



Each performance protocol is made up of a set of indicators that focus on a different component of a management system. Participating facilities are required to assess their management practices against the indicators for each of the six performance protocols:

- Aboriginal and community outreach
- Crisis management planning
- Safety and health
- Tailings management
- Biodiversity conservation management
- Energy use and greenhouse gas (GHG) emissions management

Detailed assessment protocols for each performance area provide guidance to assist companies in their self-assessments and to facilitate consistent application of TSM across companies and their facilities.

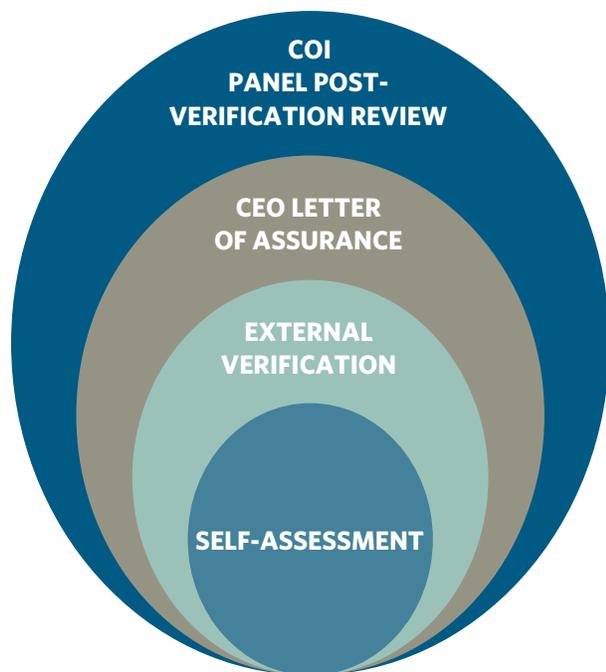
For each indicator, companies receive one of five scores based on the criteria they meet.

The scores are described below:

## TSM RATING SCALE

<b>AAA</b>	Excellence and leadership.
<b>AA</b>	Integration into management decisions and business functions.
<b>A</b>	Systems/processes are developed and implemented.
<b>B</b>	Procedures exist but are not fully consistent or documented; systems processes planned and being developed.
<b>C</b>	No systems in place; activities tend to be reactive; procedures may exist but they are not integrated into policies and management systems.

TSM's overarching goal is for all facilities to achieve a Level A or higher, which means they have fully implemented management systems to address Aboriginal and community outreach, safety and health, tailings management, biodiversity conservation management, and energy use and GHG emissions management. For crisis management planning, head offices and facilities are assessed based on a "yes" or "no" rating scale.



## REPORTING AND EXTERNAL VERIFICATION

TSM's primary objectives are to drive performance improvement and, through demonstration of this improvement, to build trust with communities of interest. This means that communities need to understand TSM and trust the performance results that the mining companies report. To build this trust, the program includes a number of checks and balances to ensure that reported results present an accurate picture of each facility's management systems and performance.

**Self-Assessment:** Facilities annually self-assess their performance against each of TSM's 23 indicators across six protocols. For each indicator, they assign a letter grade that reflects their performance ranging from Level C to Level AAA. These grades are available in the *Measuring Company Performance* section of this report. New members have three years to start publicly reporting, which allows them the opportunity to train employees for full implementation.

*In 2014, 63 facilities reported TSM performance.*

**External Verification:** Every three years, a trained verifier critically reviews a company's self-assessments to determine if there is adequate evidence to support the performance ratings the facility has reported. The verifiers are experienced auditors who are independent of the company being verified. The verifiers rigorously apply the protocols and, where required, can change the ratings to ensure they accurately reflect the facility's management practices and performance.

*This report includes externally verified performance results for 29 of the 632 facilities assessed in 2014.*

**CEO Letter of Assurance:** In the year of external verification, the company's CEO, or most senior executive in Canada, submits a letter to MAC that confirms the external verification has been conducted in accordance with the Terms of Reference for Verification Service Providers. The letter is then posted on MAC's website ([www.mining.ca](http://www.mining.ca)).

**COI Panel Post-Verification Review:** Each year, MAC's independent Community of Interest (COI) Advisory Panel selects two companies to appear before it to present and discuss their TSM results. Through these discussions, the Panel tests to see whether and how facility systems are leading to performance improvement. The Panel explores the challenges faced by the facilities and the steps companies are taking to address them.

## REVISED REPORTING AND VERIFICATION FRAMEWORK

In 2014, a revised reporting and verification framework was implemented for facilities that consistently achieve high levels of TSM performance. These changes reduce reporting burdens and provide facilities with more flexibility to align TSM verification requirements with other audit and verification commitments.

The new framework is applied as follows:

### Externally Verified Level A or AA

When a facility achieves a Level A or AA, or a "yes" in crisis management planning, across all indicators in a particular protocol, and the results are externally verified, the annual self-assessment becomes voluntary for three years for the protocol(s) that reach these levels. The facility must then undergo external verification before the end of that three-year period. During the three-year period, facilities will remain at the same level for each indicator, but they can voluntarily report annually if they choose to demonstrate improved performance.

### Two Cycles of Level A or AA/Externally Verified Level AAA

When a facility achieves a Level A or AA in two consecutive verification cycles, or a Level AAA in one verification cycle, the facility can move to a reduced verification cycle for the protocol(s) that reach these thresholds. This means that the facility would conduct an internal verification and submit a letter of assurance from its CEO after three years. The facility would then undergo an external verification after six years.

The revised framework has been retroactively applied to the last reporting cycle (2009 results) for Aboriginal and community outreach, crisis management planning and tailings management. All members will need to report for biodiversity conservation management, safety and health and the energy use and GHG emissions management protocols.

Again this year, several companies were eligible to apply the revised reporting and verification framework for at least one protocol. However, the majority of these companies decided to continue conducting self-assessments at their facilities.

### COMMUNITY OF INTEREST ADVISORY PANEL

The COI Advisory Panel is an independent, multi-interest group, which at the end of 2014 included 11 individuals from Aboriginal groups, communities in which the industry is active, environmental and social NGOs, and labour and financial organizations. Four members of the MAC Board of Directors as well as the MAC President and CEO also sit on the Panel to provide a mining industry perspective to the discussions.

The MAC Board established the Panel in 2004 to advise on the design and implementation of TSM and to provide a mechanism for two-way dialogue between MAC and its communities of interest in Canada.

#### COI Panel Functions:

- Meets twice a year to provide support and advice for the TSM program.
- Conducts a yearly review of a sample of companies' verified results to analyze company systems and practices.
- Provides critical perspectives by raising emerging issues of concern beyond those covered under TSM.

In 2014, the COI Panel held two meetings to discuss various issues relevant to the mining industry. The first was held in March 2014 and, at the request of Panel members, included a presentation by Stephen Walker, Vice Chairman of Investor & Treasury Services and Head of Global Credit at the Royal Bank of Canada. Mr. Walker shared insights on the state of the mining industry from an investment perspective. The meeting included discussions on four topics: community development, the *Beyond Zero Harm Framework*, grievance mechanisms, and water resources. On community development, the Panel discussed good practices and challenges in understanding and working with communities. The Panel was also briefed on and provided input into a guidance document for site-level grievance mechanisms. The Panel was also briefed on and provided input into a guidance document for site-level grievance mechanisms, which MAC was developing with support from the Office of the Extractive Sector Corporate Social Responsibility Counsellor. On the issue of water, the Panel advised MAC on how it should address the topic moving forward, such as involving communities in its work on water.

The Panel's second meeting took place in September 2014 in Val d'Or, Quebec. The three-day meeting included a tour of Agnico Eagle's Goldex mine and tailings reclamation project, and the Canadian Malartic mine. The primary focus of the meeting was the Post-Verification Review (PVR) process for Barrick Gold Corporation and ArcelorMittal Mines Canada, which presented their 2013 TSM results. The Panel placed a specific emphasis on three areas for the PVR: tailings management, community engagement and the international application of TSM. During the meeting, the Panel also met with members of the local communities and First Nations to share thoughts about the mining industry's role in these communities' long-term vision.

## 2014 TSM COMMUNITY OF INTEREST (COI) ADVISORY PANEL

COI PANEL CATEGORY		REPRESENTATIVE
Social NGOs, including faith-based groups	Individuals who represent civil society with knowledge of social justice issues.	Joy Kennedy
Media/communications	Individuals with expertise in the reputation of industry and perceptions of the public.	Claudine Renaud
Aboriginal peoples	Individuals who represent the interests of Métis, First Nations and Inuit.	Dan Benoit Chief Earl Klyne Theresa Hollet**
Environmental NGOs	Individuals with environmental expertise and advocates for environmental protection.	Alan Young Nathan Lemphers
International development	Individuals with expertise in business development at the community level and knowledge of community interactions with mining facilities.	Philip Oxhorn
Economic/community development	Individuals with financial expertise and knowledge of socially responsible investing.	Victor Goodman*
Finance/investment	Individuals with knowledge of the interests, safety and needs of workers.	Stephen Kibsey
Labour/workforce	The Panel may choose to select expert categories to be filled as specific issues are identified.	Doug Olthuis
Expert category	The Panel may choose to select expert categories to be filled as specific issues are identified.	Alan Penn Luc Zandvliet**
Industry representatives	Industry participation comprises four MAC Board members, one representative of the exploration sector, and the MAC President and CEO. Additional MAC Board members are strongly encouraged to regularly sit in as observers. MAC staff members also participate as resource persons.. Additional MAC Board members are strongly encouraged to regularly sit in as observers. MAC staff members also participate as resource persons.	Pierre Gratton Louise Grondin Scott Yarrow** Peter Read Mark Travers Glen Koropchuk* Mark Wiseman**

\*Left the COI Advisory Panel in 2015

\*\*Joined the COI Advisory Panel in 2015



# INDUSTRY PERFORMANCE



## UNDERSTANDING THE RESULTS

TSM assessments are conducted at the facility level, where they are most meaningful. In 2006, 15 companies reported facility-level performance, and in 2014, this number grew to 23 companies, totalling 63 facilities. This report includes externally verified results for eight companies: Agnico Eagle Mines Limited, Cameco Corporation, Dominion Diamond Corporation, First Quantum Minerals Ltd., IAMGOLD Corporation, Imperial Metals Corporation, Taseko Mines Limited and Teck Resources Limited. Because of special circumstances, Suncor Energy has deferred its full external verification for one year. However, given the importance of tailings management, Suncor conducted an external verification of its performance in this area.

TSM's overarching goal is for all MAC members to achieve a Level A or higher for all of their facilities in all performance areas. Achieving high TSM performance demonstrates that the companies have fully implemented management systems to address Aboriginal and community outreach, safety and health, tailings management, biodiversity conservation management, and energy use and GHG emissions management. Head offices and facilities achieve good performance for crisis management when they answer "yes" for each indicator.

In 2006, all reporting MAC members went through external verification of their TSM performance. The graphs that follow compare the percentage of facilities achieving a Level A or higher in 2006 to the percentage of facilities achieving a Level A or higher in 2013 and 2014 for Aboriginal and community outreach and tailings management. The graph for crisis management planning shows the percentage of companies and facilities that answered "yes" for each indicator. The graphs for biodiversity conservation management and safety and health compare the aggregate results for 2012, 2013 and 2014, as 2012 is the baseline year for these two protocols. The graph for the revised energy use and GHG emissions management protocol compares the aggregate results of 2014 to 2013, as 2013 is the baseline year for the revised three-indicator protocol. For detailed facility-level results, please see the *Measuring Company Performance* section of this report.





## COMMUNITIES AND PEOPLE

Our actions must demonstrate a responsible approach to social, economic and environmental performance that is aligned with the evolving priorities of our communities of interest. - TSM Guiding Principles

This section highlights members' performance in Aboriginal and community outreach, crisis management planning, and safety and health.

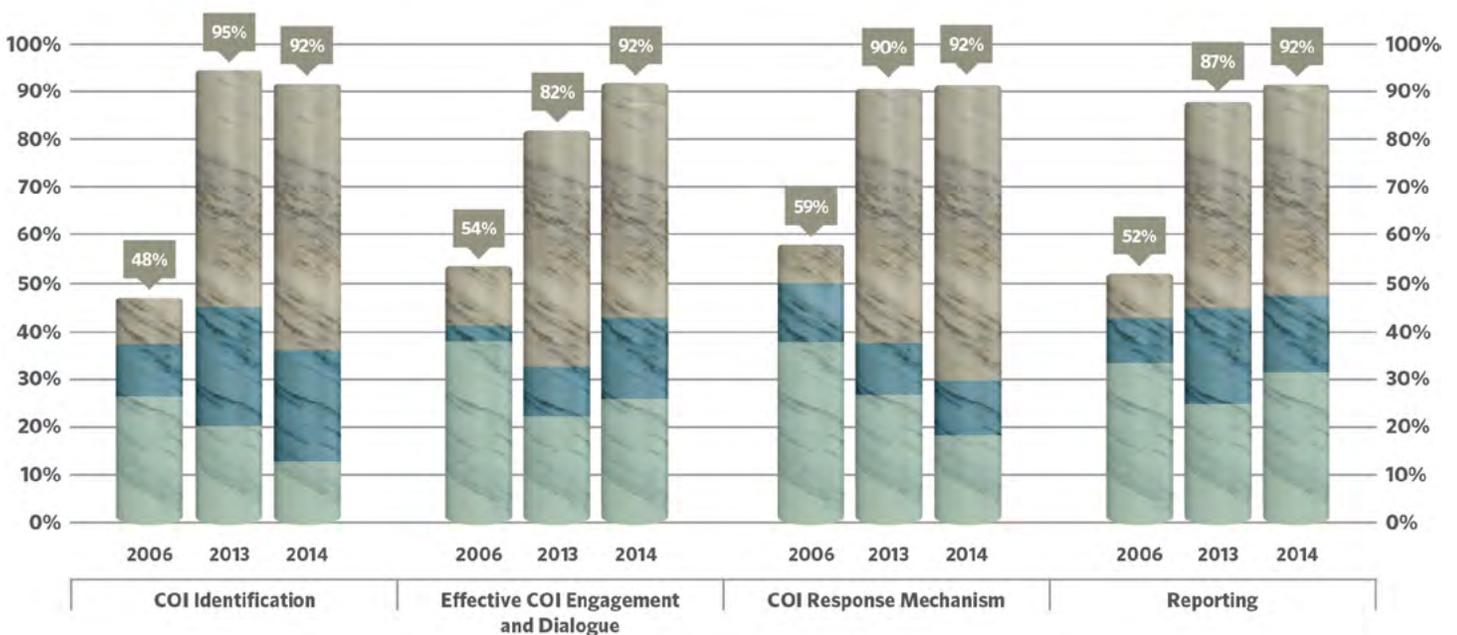
### ABORIGINAL AND COMMUNITY OUTREACH

The Aboriginal and community outreach protocol consists of four performance indicators that seek to confirm that mining facilities have developed and implemented formal processes for engaging with communities of interest (COI), including Aboriginal communities and organizations. The protocol also seeks to ensure that facilities engage in meaningful dialogue with communities of interest, have systems in place to receive and effectively respond to concerns, and report on COI engagement activities in an open and transparent manner.

In the early years of TSM, most facilities had only informal systems in place for engaging with communities and Aboriginal peoples. Today, the results for this protocol are strong, with an overwhelming majority of facilities demonstrating good practice in community engagement.

### ABORIGINAL AND COMMUNITY OUTREACH PERCENTAGE OF FACILITIES AT LEVEL A OR HIGHER 2006, 2013 AND 2014

Level A ● Level AA ● Level AAA ●



 COMMUNITIES AND PEOPLE**Indicator 1: COI Identification**

The first indicator in this protocol is designed to ensure that mining companies have established and implemented formal systems to identify individuals or organizations that are affected or perceived to be affected by a facility's operations. A key outcome of this process is the development of a COI map.

***In 2014, 92% of facilities reported that, at a minimum, they fulfill all Level A requirements for indicator 1. Of the facilities that achieved a Level A or higher, 56% have been assessed at a Level AAA.***

Facilities at Level AAA are able to demonstrate that they have identified communities of interest whose interest in the facility is indirect, such as national non-governmental organizations. In addition, these facilities invite communities of interest to provide input into the identification of other individuals and groups, which ensures that a broad range of interests are considered.

**Indicator 2: Effective COI Engagement and Dialogue**

The second indicator is designed to confirm that facilities have established processes to communicate with their communities of interest. The purpose of this indicator is to ensure that communities are informed of the facility's activities and performance and that the facility understands the viewpoints of communities. Facilities should also be able to demonstrate how COI input is used to inform management decisions.

Facilities that report a Level A for this indicator are able to demonstrate that they are actively engaged with their communities of interest in meaningful dialogue. In order for engagement and dialogue to be meaningful to both the facility and communities, processes must be in place to ensure that communications are written in a language that is clear and understandable to all parties involved, that facility personnel are trained on Aboriginal consultation requirements, and that, among other requirements, information is provided to communities of interest in a timely manner.

To be assessed at a Level AAA for this indicator, a facility must be able to demonstrate that it has a consistent history of meaningful engagement and processes in place to build COI capacity. A facility must also ensure that communities are engaged in periodic reviews of the engagement process to allow for continual improvement and that negotiated agreements with Aboriginal communities are in place where appropriate.

***Results for indicator 2 have improved, with 92% of facilities reporting a Level A or higher, compared to 82% in 2013. The percentage of facilities at a Level AAA for this indicator is similar year-over-year at 48%.***

**Indicator 3: COI Response Mechanism**

The third indicator seeks to ensure that facilities have processes in place to receive feedback from their communities of interest, and that they consider and respond to community complaints and concerns. Facilities that achieve a Level A are also able to demonstrate that input from their communities is incorporated into their decision-making processes. It also means that they have a good understanding of community concerns, and have a complaint and response system in place. Facilities rated at a Level AAA can demonstrate that they collaborate with their communities to establish and achieve common goals.

***In 2014, 92% of facilities reported a Level A or higher for indicator 3. Of these facilities, 62% achieved a Level AAA rating, an increase from 53% last year.***

**Indicator 4: Reporting**

The fourth indicator seeks to confirm that COI engagement activities are reported in an open and transparent way. To achieve a Level A, a facility must have a reporting system on COI engagement in place, including responses to



## COMMUNITIES AND PEOPLE

its communities' concerns. Facilities that achieve a Level AAA demonstrate excellence and leadership by publicly reporting concerns raised by their communities of interest, providing opportunities for COI feedback on public reporting, and actively seeking feedback on engagement, dialogue and consultation processes.

***In 2014, 92% of facilities reported a Level A or higher for indicator 4, an increase from 87% in 2013. Of these facilities, 44% reported a Level AAA performance.***

The following case studies are examples of how effective relationships and collaboration with communities of interest help achieve common objectives and fulfill a requirement for a Level AAA in the TSM Aboriginal and community outreach protocol.

### **CASE STUDY: CAMECO CORPORATION**

#### **Creating partnerships and opportunities for Aboriginal communities in northern Saskatchewan**

From its pristine natural beauty to its richness in natural resources to its eager, young and growing First Nations and Métis population, northern Saskatchewan has tremendous potential. It is home to the world's richest uranium deposits, and is where Cameco Corporation operates several mining and milling operations. Over the past 25 years, Cameco has developed many long-standing partnerships with First Nations and Métis communities in the region, and credits much of its business success to these relationships.

Cameco works to ensure that northerners share in the socio-economic benefits that uranium mining has brought to the region. The company has also worked to ensure that a traditional way of life can continue to be practised by Cameco employees and people living in all communities throughout the region.

Cameco is Canada's largest industrial employer of Aboriginal people and the leading employer in the region. Currently, 50% of the employees and contractors at Cameco's operations are from northern Saskatchewan, including 30% in trades and supervisory roles. Concerted efforts are being made to grow employment levels even more, starting with a focus on education. Cameco is actively involved in several educational initiatives, and is collaborating with communities, academic institutions and government to encourage post-secondary education.

The power of company-community partnerships has also been felt in other areas that have generated significant economic and societal benefits. For example, Aboriginal business development has flourished, and more than 70% of the services Cameco uses are from Aboriginal-owned companies. Since 2004, this has amounted to more than \$3 billion worth of business. Cameco also provides financial support for community projects, events and causes. Other company investments include infrastructure projects that benefit both the mine and nearby communities. In 2013, for example, Cameco made an \$8-million commitment toward a \$30-million project that will not only bring higher-speed Internet to the company's mining operations, but will also enable the telecommunications firm, SaskTel, to introduce enhanced services to several communities in the region. More recently, in 2014, Cameco contributed funds to build a new fire hall in Hatchet Lake - a \$1.3-million project that enhances the safety of residents and businesses in the remote northern First Nation and surrounding area.

## COMMUNITIES AND PEOPLE

### CASE STUDY: IAMGOLD CORPORATION

#### Multi-functional platform produces new opportunities for local women

In Essakane village, located near IAMGOLD's Essakane Gold Mine in Burkina Faso, the main economic activities are agriculture, livestock farming and gold washing (searching for gold by hand). Women handle most of the domestic chores, particularly meal preparation, which accounts for nearly 50% of their time. At a meeting with the mine's representatives, women from the village expressed their desire to have an electric grain mill, which would greatly lessen the time it would take to shell and grind millet—a staple in the local diet. Traditional methods require the use of a mortar and pestle to grind and pound the grain into flour—a two to three hour process. It also requires the work of more than one woman in a household at a time.

In response, IAMGOLD contacted Burkina Faso-based NGO, OCADES Kaya, to help the women build a multi-functional platform that would provide grain shelling and milling services, and would allow for potential new services in the future, such as a welding station. With the platform's installation in 2013, the women now have access to technology that produces a higher quality flour in just two minutes. This has greatly lightened the women's workload, freeing up their time for other activities, such as taking literacy classes and learning valuable skills like micro-finance. The women have also gained experience handling the technical and financial management of the platform, providing them with opportunities and experiences previously only afforded to men.

The platform itself is a shelter with a lean-to that was constructed using recycled wood from the mine's waste materials. This lean-to serves as a meeting place for the women to discuss the platform's management. The mine also donated metal waste for a welding workshop held at the platform that was used by artisans to make and repair agricultural equipment and housing materials.

In April 2015, the OCADES Kaya/Dori consortium will withdraw from the initiative to allow the village women to take over full management of the platform. The women intend to gradually add income-generating activities that will ensure the sustainability of the platform in the future.



**IAMGOLD'S MULTI-FUNCTIONAL PLATFORM PROJECT IN BURKINA FASO.**

 COMMUNITIES AND PEOPLE**CASE STUDY: GLENCORE CANADA****Helping local non-profits secure sustainability through social enterprising**

Glencore's Kidd Operations, including the Kidd Concentrator and the Kidd Mine, is Timmins' largest private-sector employer. Kidd Operations is a major corporate funder in Timmins, and has donated nearly \$4 million towards community initiatives since 2007. Through its work with local non-profits, operations staff heard from many organizations that they were worried about their long-term viability. With more private sector and government bodies moving towards funding long-term projects that create community sustainability—and not just a one-time photo op—non-profits were eager to learn new strategies to compete for funding and become more sustainable.

Kidd Operations identified an opportunity to help the local non-profit sector build its capacity and learn about social enterprising – the practice of using commercial strategies to maximize improvements in human and environmental well-being. Kidd Operations collaborated with community partners in organizing “Working Towards Sustainability,” a two-day conference and training event held at the Timmins Native Friendship Centre in November 2013. The event brought together nearly 100 representatives from local non-profits, fundraising experts, and grant makers from the industry and government.

In the years that followed, several positive outcomes resulted from the conference. First, a collaborative model for sustainable community development was formed with broad support from the community. Second, a number of projects are being developed that incorporate lessons learned from the event. This includes the planned Social Innovation Centre and a Business to Non-Profit In-kind Brokerage Service, which will align social investment goals and small business capacity with the needs of non-profits.

The conference's success is largely attributed to multi-stakeholder collaboration. Partners included the Cochrane District Social Planning Council, the Chamber of Commerce, the Ontario Trillium Foundation, as well as representatives from post-secondary education, economic development, Aboriginal organizations, and municipal and provincial governments. The Cochrane District Social Planning Council continues to meet with partners to identify and deliver community-based training sessions informed by the feedback from the event.



## COMMUNITIES AND PEOPLE

### CRISIS MANAGEMENT PLANNING

In times of crisis, the first few hours are critical. In today’s global digital environment, a crisis situation can easily be brought to the attention of the world within hours, even minutes. In addition to mitigating the cause of the crisis and mitigating adverse effects on communities, employees, shareholders and the environment, the company must continuously communicate how it is managing and resolving the crisis. Doing this effectively takes considerable planning, organization and practice well before a crisis hits.

The crisis management planning protocol is intended to provide mining companies with the tools needed to effectively plan for communications in the unfortunate event of a crisis at one of their facilities or at the corporate level. Where the crisis is caused by a physical emergency, such as a fire or flood, the tools offered in this protocol are intended to work in conjunction with emergency response plans at the facility.

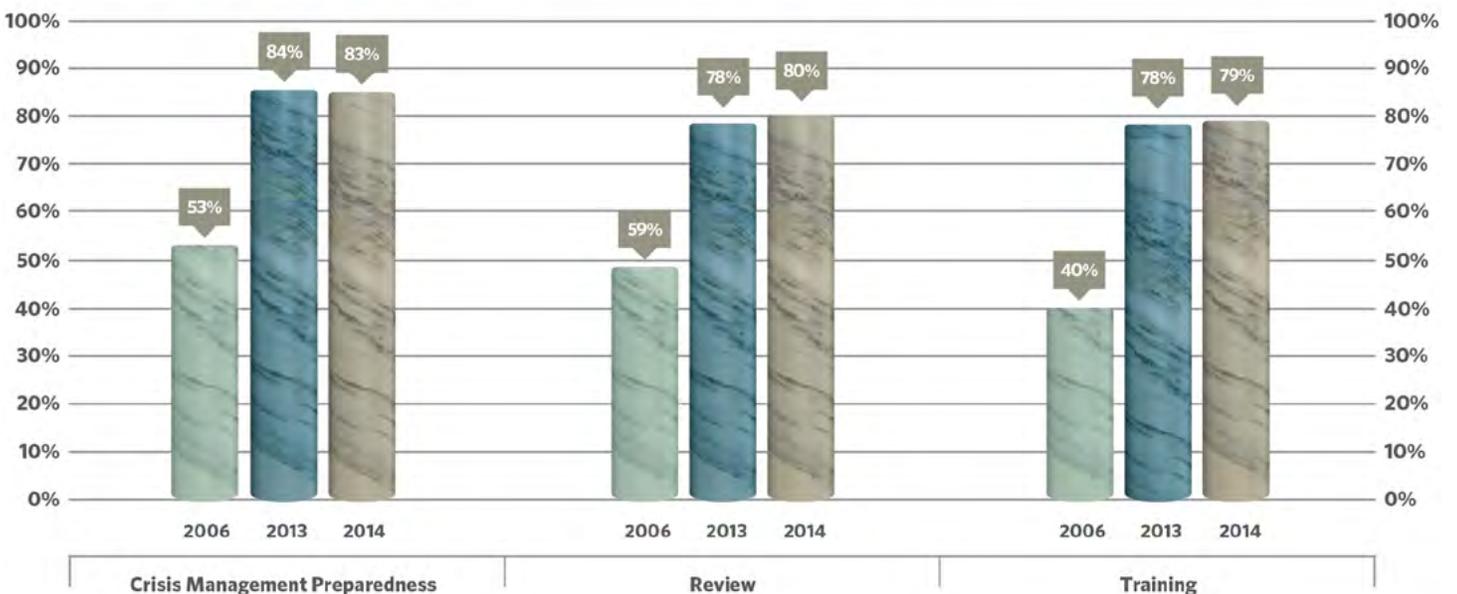
The protocol requires both head offices and facilities to develop crisis management plans, as well as establish crisis communications teams to support the execution of these plans. Facilities must be able to demonstrate, among other requirements, that they have crisis communications programs in place to effectively alert employees and the public of a crisis, and its development and resolution. They must also be able to demonstrate that their crisis management plan is regularly tested and updated.

The crisis management planning protocol has a different rating scale from the other TSM protocols and is the only one to require assessments at both the corporate and facility levels. Facilities and head offices assess their crisis management planning performances using a “yes” or “no” rating scale. Each of the three indicators includes a list of criteria that must be met before a corporate office or a facility can answer “yes.”

On an aggregate basis, the results show significant improvement since 2006. However, since 2013, the results have not improved further.

### CRISIS MANAGEMENT PERCENTAGE OF COMPANIES AND FACILITIES RESPONDING “YES” 2006, 2013 AND 2014

Level A ● Level AA ● Level AAA ●



## COMMUNITIES AND PEOPLE

### Indicator 1: Crisis Management Preparedness

The first indicator in this protocol requires both corporate offices and their facilities to demonstrate crisis management preparedness through the development of a crisis management plan, the establishment of a crisis management team and the implementation of crisis communications programs to effectively alert employees in the event of a crisis. A long list of criteria must be met to answer “yes” to this indicator.

*In 2006, only 53% of facilities met all the criteria for indicator 1. That percentage increased to 83% in 2014.*

### Indicator 2: Review

The second indicator requires corporate offices and facilities to regularly review and update their plans. This review ensures that crisis management plans remain responsive and relevant to the needs of the company and its operations. In order to meet the industry standard, a test of the plan’s notification systems must be conducted twice a year, and new members of the crisis team must be familiarized with the plan within their first two months of joining the team.

*Overall, the results for indicator 2 have continued to improve, with 80% reporting “yes” in 2014 compared to 59% in 2006 and 78% in 2013.*

### Indicator 3: Training

The third indicator seeks to confirm whether crisis management training is being conducted at both the corporate and facility levels. Each year, both levels of a company are required to conduct a table-top simulation exercise. This exercise typically involves a facilitator presenting the crisis management team with a scenario that includes a series of escalations that require the team to analyze and respond. At the facility level, a full crisis simulation must also be conducted every three years.

*In 2014, 79% of companies and facilities met all the criteria for indicator 3, an improvement over 2006 when only 40% did.*



**MEMBERS OF THE FIRE RESCUE TEAM AT TECK RESOURCES' HIGHLAND VALLEY COPPER MINE.**



## COMMUNITIES AND PEOPLE

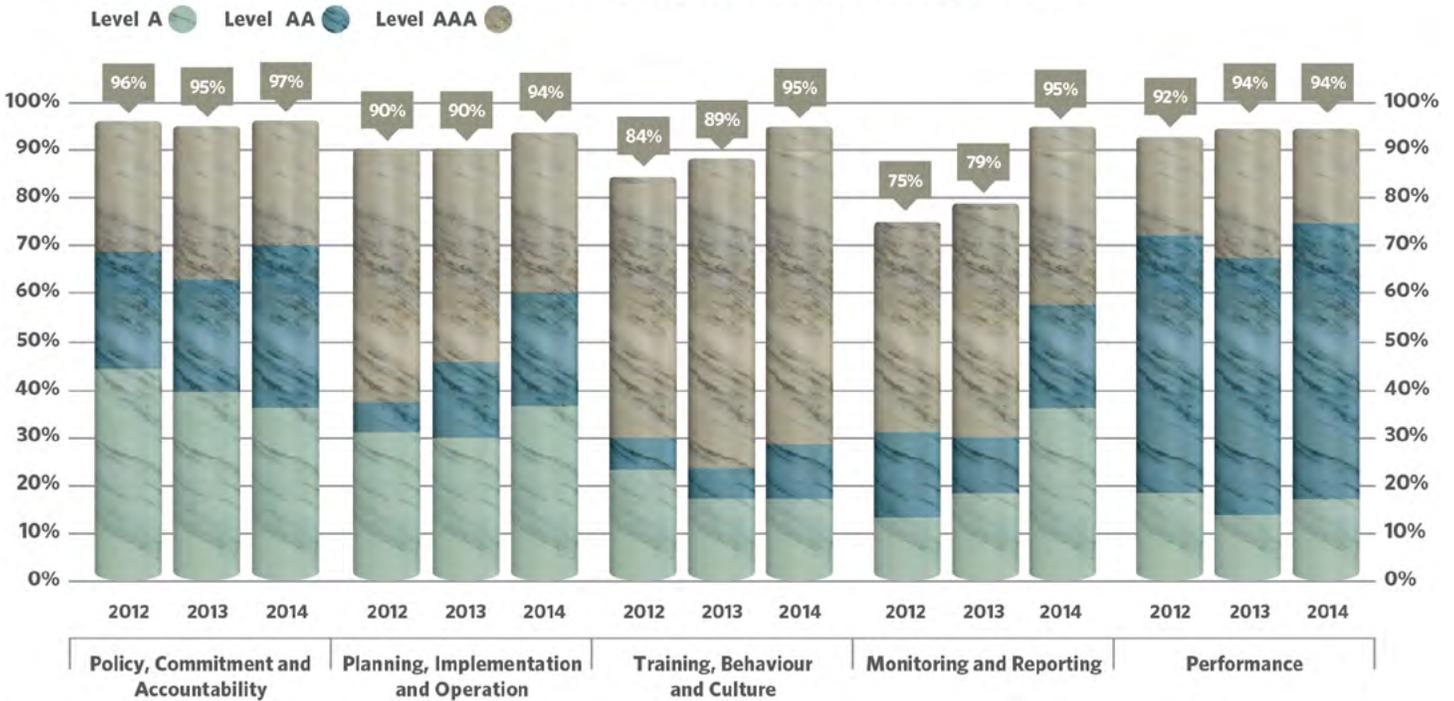
### SAFETY AND HEALTH

Protecting the safety and health of employees and contractors is a fundamental component of TSM and is deeply engrained in the Canadian mining industry's culture.

The safety and health protocol includes five indicators that concern occupational safety and health management at the facility level. These indicators are designed to confirm whether facilities have established clear accountability for safety and health management and performance, that processes have been established to prevent the occurrence of all incidents, that all employees and contractors are engaged in the appropriate training to identify hazards, that performance is reported both internally and externally, and that facilities set targets for continuous improvement.

On an aggregate basis, the results in this area remain strong and are consistent with the data presented in the 2014 TSM Progress Report.

### SAFETY AND HEALTH PERCENTAGE OF FACILITIES AT LEVEL A OR HIGHER 2012, 2013 AND 2014



#### Indicator 1: Policy, Commitment and Accountability

The first indicator in this protocol seeks to confirm that there is accountability for safety and health management and performance at the facility level, which includes the implementation of policy commitments that are consistent with the intent of MAC's *Safety and Health Policy Framework*. Facilities that achieve a Level A are able to demonstrate that policy commitments have been endorsed by senior management and communicated to employees and contractors. To achieve a Level AA for this indicator, facilities must go beyond a self-assessment and conduct an internal audit to ensure that all of the requirements of a Level A rating have been satisfied. To achieve a Level AAA, a third-party audit must be conducted.

**In 2014, 97% of facilities achieved a Level A or higher for indicator 1. Of these facilities, 33% achieved a Level AA and 27% achieved a Level AAA.**



 COMMUNITIES AND PEOPLE**Indicator 2: Planning, Implementation and Operation**

The second indicator concerns the development and implementation of a safety and health management system to prevent the occurrence of all incidents. Facilities rated at a Level A have a formal and documented management system that includes elements such as documented safety standards and procedures, defined roles and responsibilities, and dedicated resources to implement the management system. Facilities assessed at a Level AA or AAA for this indicator are able to demonstrate that an internal (Level AA) or external (Level AAA) audit or assessment has been conducted to confirm that the safety and health management system has been fully implemented at the facility.

***In 2014, 94% of facilities were assessed at a Level A or higher for indicator 2. Of these facilities, 22% achieved a Level AA and 33% achieved a Level AAA, a decrease from 44% year-over-year.***

**Indicator 3: Training, Behaviour and Culture**

The third indicator relates to effectively training employees and contractors on safety and health to ensure that they are competent in identifying hazards and preventing incidents. A training program that is consistent with TSM requirements includes training needs analysis, risk-based training and orientation for all employees, contractors and visitors. Facilities rated at a Level A or higher demonstrate that training is designed to implement hazard identification and reporting programs with a focus on prevention and proactive measures. Additionally, commitment to safety and health must be embedded in the facility, and management must demonstrate this commitment through one-on-one interactions with employees.

***The aggregate results for indicator 3 are strong. In 2014, 95% of facilities were assessed at a Level A or higher in 2014. Of these facilities, 67% achieved a Level AAA.***

**Indicator 4: Monitoring and Reporting**

The fourth indicator is designed to ensure that safety and health performance is regularly monitored, and that internal and external reporting takes place. Facilities assessed at a Level A for this indicator will have implemented a fully functional safety and health monitoring program to facilitate both internal and public reporting. A comprehensive monitoring program will track performance against leading and lagging indicators, safety and health inspections, health surveillance, and incident investigations. To achieve the highest levels of performance, a facility must be able to demonstrate that safety and health data compilation and reporting systems have been internally (Level AA) or externally (Level AAA) audited or assessed. This ensures that a consistent process is used to collect reliable data and information about safety and health performance.

***Indicator 4 has seen the greatest improvement of all the indicators within this protocol. In 2014, 95% of facilities were assessed at a Level A or higher compared to 79% in 2013. The percentage of facilities assessed at a Level A increased from 19% to 37%, while the percentage of facilities assessed at a Level AAA decreased from 48% to 38%.***

**Indicator 5: Performance**

Zero harm is the goal when it comes to employee safety and health. The fifth indicator is designed to ensure that facilities are setting targets to work towards this goal. To achieve a Level A, facilities must establish performance targets, and site management must be involved in setting and reviewing these targets. For this indicator, if a facility experiences a fatality during the reporting year, it is ineligible for a Level A or higher rating.

***In 2014, 94% of facilities were assessed at a Level A or higher for indicator 5, showing the membership's strength in this area.***

Recognizing that zero harm should be our primary goal, TSM requires facilities to implement a safety and health management system to ensure safe and healthy workplaces and a culture of prevention. The following case study demonstrates how adopting a proactive risk management approach can reduce the potential for incidents that can cause loss or harm to people.

## COMMUNITIES AND PEOPLE

### CASE STUDY: AGNICO EAGLE MINES LIMITED

The best way to manage accidents is to prevent them from occurring

To maintain the highest health and safety standards possible, Agnico Eagle has undertaken a proactive approach to incident reporting and inspections in an effort to prevent accidents before they happen. Agnico Eagle's long-term goal is to strengthen its health and safety culture through more individual accountability and leadership, to reach the ultimate goal of a workplace with zero accidents. Extensive health and safety training is provided to all supervisory levels, and all employees use a method called the "Supervisory Formula." The formula's main tool—the work card—engages everyone in an active leadership role with the collaboration of their supervisors and colleagues. It also encourages safety planning discussions and follow-ups. The approach works because all employees commit to their own safety and, equally, to that of others in the workplace.

In 2014, Agnico Eagle expanded the data it collects to include leading indicators (as compared to lagging indicators like accident frequency). These indicators include hours of safety training provided, time to complete corrective actions after an incident, and reporting of near-miss incidents. In the same year, the company also piloted a dashboard at its Meadowbank mine to help supervisors and management follow industrial hygiene data—information about potential hazards that could result in injury or impacts to well-being. The dashboard reduces the time required to analyze the data, which in turn, helps supervisors and management take any necessary action sooner.

Continuous learning in the areas of health and safety and sustainability are top priorities for Agnico Eagle. To help facilitate this, the company recently created a forum for all health and safety, environment, community relations and communications personnel across the company's divisions (including exploration) to share best practices. The group meets regularly to work collaboratively on resolving issues. The company also made it standard practice to appoint a sustainability specialist to project evaluation teams to ensure environmental and social issues are considered as early as possible, with the goal that a project is designed with sustainability in mind from the outset.





## ENVIRONMENTAL STEWARDSHIP

A goal of TSM is to minimize the impact of mining activity on the environment and biodiversity through all stages of development, from exploration to closure.

– TSM Guiding Principles

This section describes how facilities have developed systems to bolster environmental stewardship through best practices in tailings management and biodiversity conservation management.

Overall, the industry's performance in key environmental areas, including tailings management, has improved significantly over the years, largely as a result of senior executive recognition of the importance of managing what is typically a facility's most significant environmental and safety risk. Nevertheless, with the tailings dam failure at the Mount Polley Mine in 2014, the industry faced a significant challenge and is committed to building on the efforts it has made in recent decades in developing a strong record in tailings management.

### TAILINGS MANAGEMENT

#### Mount Polley Tailings Dam Breach

The August 4, 2014 tailings dam failure at the Mount Polley Mine in British Columbia, owned and operated by Imperial Metals Corporation, a MAC member and TSM participant<sup>1</sup>, created significant concern among the industry, regulators, First Nations and stakeholders regarding the operation of tailings storage facilities. An independent review of the tailings dam failure, commissioned by the Government of British Columbia, concluded that the "dominant contribution to the failure resides in the design," which "did not take into account the complexity of the sub-glacial and pre-glacial geological environment associated with the perimeter embankment foundation."<sup>2</sup> The independent panel's report stated that the failure occurred notwithstanding effective regulatory oversight and found no evidence that the failure was due to human intervention or overtopping of the perimeter embankments and that piping and cracking, which is often the cause of the failure of earth dams, was not the cause of the breach.<sup>3</sup>

The report made seven recommendations to improve practice and reduce the potential for future failures. One of these recommendations referred to TSM's tailings management requirements and guidance, stating that corporations seeking to operate a tailings storage facility should be "required to be a member of MAC—ensuring adherence to the TSM—or be obliged to commit to an equivalent program for tailings management, including the audit function."<sup>4</sup> The report also stated that compliance with the TSM initiative is an element of global best practice for the mining industry today.

Immediately following the tailings dam breach, and before the independent panel concluded the cause of the failure, MAC proactively initiated a review to assess the association's tailings management program, including the mandatory requirements of the TSM initiative and MAC's three tailings management guides.

<sup>1</sup>See the section Measuring Company Performance of this report for more information on Imperial Metals and Mount Polley or visit the company's website at [www.imperialmetals.com](http://www.imperialmetals.com).

<sup>2</sup>Government of British Columbia, Report on Mount Polley Tailings Storage Facility Breach, Independent Expert Engineering Investigation and Review Panel, January 30, 2015, 105.

<sup>3</sup>Government of British Columbia, Report on Mount Polley Tailings Storage Facility Breach, Independent Expert Engineering Investigation and Review Panel, January 30, 2015.

<sup>4</sup>Government of British Columbia, Report on Mount Polley Tailings Storage Facility Breach, Independent Expert Engineering Investigation and Review Panel, January 30, 2015, 126.



ENVIRONMENTAL STEWARDSHIP

**TAILINGS MANAGEMENT  
PERCENTAGE OF FACILITIES AT LEVEL A OR HIGHER 2006, 2013 AND 2014**



**Review of TSM Tailings Management**

This initiative is spearheaded by MAC’s Tailings Working Group, a committee of tailings management practitioners and consulting experts, and will examine what can be learned from the Mount Polley breach to ensure these incidents do not occur again. Despite the panel’s conclusion that the cause of the failure was a design flaw, and notwithstanding its endorsement of TSM as global best practice in tailings management, MAC is continuing with this review.

It is important to note that MAC’s TSM tailings management requirements primarily focus on the management of structures, and have not been geared to assess or evaluate original design or construction of a facility. TSM does not provide technical guidance on tailings facility design, construction or operations, nor does it take the place of professional expertise or regulatory requirements. The TSM tailings management protocol and guides focus on sound tailings management through the implementation of effective tailings management systems. This includes assigning executive-level accountability and responsibility for tailings management and developing and maintaining an operation, maintenance and surveillance (OMS) manual. A facility must also evaluate the performance and adequacy of its tailings management system annually.

To complement MAC’s internal work, the association took an additional step by commissioning an independent, multi-stakeholder expert task force to advise MAC’s Board of Directors on steps that could be taken to further strengthen the association’s tailings management system. The Task Force worked throughout 2015 to review MAC’s three tailings management guides and protocol and ensure that these components of TSM are robust tools to help members prevent tailings dam failures and optimize the design, construction and ongoing management of tailings facilities. A final report, containing 29 recommendations that the Task Force believes would enhance the tailings management requirements under TSM, was presented to the MAC Board of Directors in November 2015. Work is now underway to identify how best to integrate the recommendations into TSM.



 ENVIRONMENTAL STEWARDSHIP
**Independent TSM Tailings Task Force Members**

The task force is chaired by Doug Horswill, a former MAC chair and retired senior vice president of Teck Resources Limited. Other members of the task force are:

- Geotechnical Engineer – Peter Lighthall (independent consultant, formerly with AMEC and Kohn-Crippen)
- First Nations/Environmental/Engineering – Nalaine Morin (Tahltan Heritage Resources Environmental Assessment Team)
- Environmental NGO/COI Panel Representative – Alan Young (International Boreal Conservation Campaign and MAC COI Panel member)
- Management Systems/TSM Expertise – Dr. Craig Ford (Corporate Responsibility Solutions Inc., Executive in Residence at the Schulich School of Business)
- Geotechnical Engineer – Dr. John Sobkowicz (Thurber Engineering Ltd.)
- Chair of MAC Tailings Working Group – Dr. Michael Davies (Teck Resources Limited)

Dr. Dirk Van Zyl, who served on the BC Independent Expert Engineering Investigation and Review Panel, will serve as a special advisor to the task force.

For a copy the Report of the TSM Tailings Review Task Force or the Task Force's Terms of Reference, please visit [www.mining.ca](http://www.mining.ca).

**CURRENT TAILINGS PROTOCOL**

The TSM tailings management protocol goes beyond adherence to technical standards and contains five performance indicators. These indicators are designed to confirm whether a facility has implemented a system for responsible tailings management. The protocol incorporates MAC's three guides that outline how mining companies can safely operate tailings facilities. In order to achieve a Level A or higher, facilities must demonstrate adherence to the tailings management guides.

**Indicator 1: Tailings Management Policy and Commitment**

The first indicator in this protocol assesses whether a company has established a policy that expresses its intention, commitments and principles with respect to tailings management. To achieve a Level A for this indicator, a company must be able to demonstrate that it has a policy in place that makes specific commitments to ensure that all structures are stable, all solids and water are managed within designated areas, and all aspects of tailings management comply with regulatory requirements and conform to sound engineering practices. A company must also demonstrate that consultation occurs with communities of interest regarding tailings management, and programs for ongoing review and continual improvement are implemented.

***In 2014, 90% of facilities were assessed at a Level A or higher for indicator 1. This is an increase from 82% in 2013. In 2006, only 44% of facilities were able to demonstrate they met all criteria for this indicator.***

**Indicator 2: Tailings Management System**

The second indicator requires facilities to implement a tailings management system. This provides a formal systematic structure for the assessment of risks, the setting of goals and objectives, consultation with communities of interest, implementation of activities to achieve goals, assignment of responsibilities, development of key performance indicators, and assurance processes to ensure that tailings facilities are managed effectively.

 ENVIRONMENTAL STEWARDSHIP

***The percentage of facilities assessed at a Level A or higher for this indicator has increased from 39% in 2006 to 80% in 2013 and 90% in 2014.***

#### **Indicator 3: Assigned Accountability and Responsibility for Tailings Management**

The third indicator evaluates whether facilities have established the appropriate accountability and responsibility for tailings management. To achieve a Level A, facilities are expected to assign overall accountability for tailings management to an executive officer of the company (CEO or COO), with responsibility for putting in place an appropriate management structure, and for providing assurance to the corporation and its communities of interest that the company's tailings facilities are managed responsibly. For multinational companies with headquarters outside of Canada, the expectation is that accountability is assigned to the most senior executive in Canada. The executive officer will typically delegate the responsibility for tailings management, budgetary issues and other tailings-related functions to operations and other senior corporate personnel while retaining overall accountability for performance.

***Results for indicator 3 have shown continuous improvement between 2006 and 2013. This year's performance was equivalent to last year's, with 94% of reporting facilities assessed at a Level A or higher.***

#### **Indicator 4: Annual Tailings Management Review**

The fourth indicator seeks to confirm whether facilities are regularly evaluating the performance of their tailings management systems. To achieve a Level A, facilities must be able to demonstrate that annual reviews are conducted. Typically, the annual review will examine inspection, audit and assessment reports, changing circumstances, monitoring results, spills and other incidents, recommendations, and the commitment to continual improvement. The review will also evaluate the adequacy of policies and objectives for the tailings management system, as well as the system's performance and the financial resources allocated to it. The annual review is a good time to review progress made towards commitments to communities of interest and address the need for changes to those commitments. The annual review is meant to go beyond technical performance to address all aspects of the management of the tailings facility and should be reported to the executive officer accountable for tailings management.

***Results for indicator 4 have been steadily improving over the past few years with the percentage of facilities assessed at a Level A or higher, reaching 90% in 2014.***

#### **Indicator 5: Operation, Maintenance and Surveillance (OMS) Manual**

The fifth indicator confirms whether a company has developed a comprehensive OMS manual. The OMS manual is the instruction manual for operating tailings and water facilities safely, and ensures that essential documentation is kept and made available. It communicates the key engineering criteria and management principles for the facilities to all personnel. An OMS manual may also be a regulatory requirement, depending on the jurisdiction.

To achieve a Level A, companies are required to develop and implement an OMS manual as a component of their management system. Facilities assessed at a Level A must also be able to demonstrate that they have established emergency preparedness and response plans, which are an integral component of OMS manuals and essential for the safety of tailings facilities and surrounding communities. MAC maintains a detailed guide on how to develop an OMS manual and what information should be included. This guide can be accessed on MAC's website ([www.mining.ca](http://www.mining.ca)).

***In 2014, 98% of facilities were assessed at a Level A or higher, which demonstrates a significant increase from 2006 when only 47% of facilities achieved a Level A or higher.***

Tailings management is a fundamental component of mining operations in Canada. The following case studies are good examples of how facilities handle disposal and storage of tailings in a sustainable and responsible manner.

## ENVIRONMENTAL STEWARDSHIP

### CASE STUDY: IAMGOLD CORPORATION

#### Finding opportunities for sustainability in unlikely places: mine waste

IAMGOLD Corporation's Westwood Gold Mine in Quebec has proven that there are opportunities for sustainability in all areas of mining, including mine waste. When deciding where to put tailings and concentrator waste from the Westwood mine operations, IAMGOLD decided to reuse former infrastructure to reduce its environmental footprint.

In August 2014, the company converted the former Doyon open-pit mine, which is on the Westwood property, into a tailings storage site. Reusing this infrastructure meant that IAMGOLD did not need to construct a new tailings site for the Westwood mine. Before using the pit, IAMGOLD commissioned third-party experts to conduct hydrogeological studies, which confirmed that the Doyon mine was effectively a hydraulic trap, meaning that there was no link between the waters accumulated in the pit and the natural waterbed surrounding it. IAMGOLD also obtained authorization from the provincial government to use the former mine for tailings and waste storage.

Through research and development, IAMGOLD is exploring innovative ways to further reduce its environmental footprint by studying the use of lime mud in land rehabilitation. Lime mud is a by-product generated during the acid water treatment processes conducted on site. Rather than simply disposing of it, IAMGOLD is collaborating with the Université du Québec en Abitibi-Témiscamingue on trials to develop an effective formula for using lime mud remedially during mine-site restoration. If successful, this innovation will not only help IAMGOLD manage the environmental risks of acidic tailings, but will also result in the company reducing its waste and likelihood of needing new disposal sites.



## ENVIRONMENTAL STEWARDSHIP

### **CASE STUDY: AGNICO EAGLE MINES LIMITED**

Agnico Eagle's Goldex mine is an underground mine located just outside of Val-d'Or, Quebec. Goldex is unique because of its partnership with the Quebec government in the restoration of the nearby historic Manitou mine site. Of all the abandoned mine sites in Quebec, the Manitou tailings site, covering an area of about 200 hectares, had been identified as one of the most significant sources of contamination by Quebec's environment ministry. Drainage from the acid-producing Manitou tailings had been contaminating the Bourlamaque River for decades. This was a result of many years of poorly confined tailings, generated between 1942 and 1979 by the mining companies operating the Manitou site at the time.

To stop the contamination, Agnico Eagle partnered with Quebec's Ministry of Natural Resources and Wildlife, and collaborated with the Mining and Environment Research Institute, a research program involving the Université du Québec en Abitibi-Témiscamingue and Polytechnique Montréal that focuses on the management of tailings. Together, the partners tackled the rehabilitation challenge by confining the Manitou tailings with a series of dikes. The tailings from the Goldex mine are then transported through a 25-kilometre-long pipeline to the Manitou site where they are deposited on top of the Manitou tailings to raise the water level. Since the Goldex tailings are chemically inert and have neutralization potential, this action effectively stops the acid generation in the Manitou tailings.

In effect, the Goldex tailings have helped to rehabilitate the site. This initiative has also eliminated the need for the construction of a new tailings impoundment at the Goldex site itself. This important rehabilitation work will continue throughout the anticipated life of the Goldex mine. Additionally, the restoration of wildlife habitats, especially fish habitats, will be integrated into the scope of work.



**AERIAL VIEW OF THE HISTORIC MANITOU  
MINE SITE NEAR VAL-D'OR, QUEBEC.**

## ENVIRONMENTAL STEWARDSHIP

### BIODIVERSITY CONSERVATION MANAGEMENT

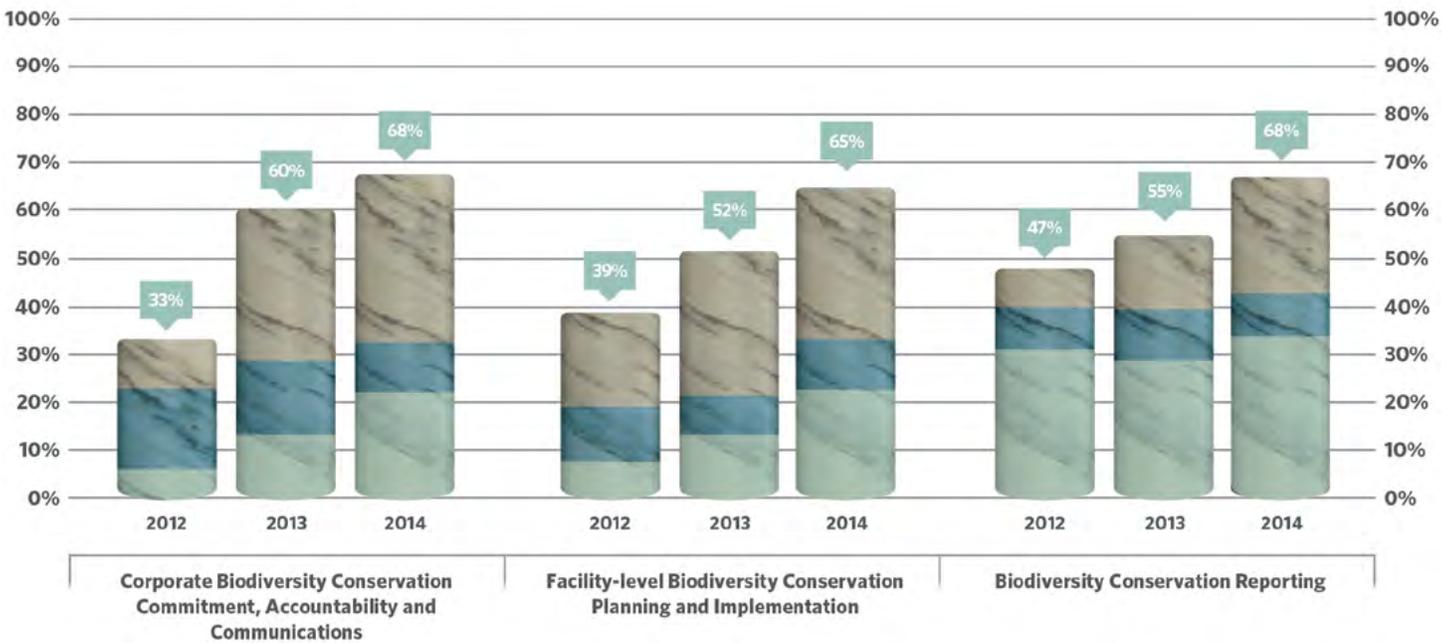
We believe that mining, conducted in consultation with communities of interest, can co-exist with biodiversity conservation. Adopting responsible practices with respect to biodiversity conservation management through all stages of a mine’s life cycle is an industry priority, and helps to establish and maintain a company’s privilege to operate.

The biodiversity conservation management protocol consists of three indicators that set out expectations for mining companies with respect to conserving biodiversity. The protocol seeks to confirm that facilities have established formal commitments to manage biodiversity at their sites, that action plans for significant biodiversity aspects are implemented, and that biodiversity conservation reporting systems are in place to inform decision making and communicate the performance of facilities publicly.

MAC members continue to make significant improvements across the three indicators since the protocol was first reported on in 2012. With this year’s results, their efforts to improve performance in this area are beginning to bear fruit.

### BIODIVERSITY CONSERVATION MANAGEMENT PERCENTAGE OF FACILITIES AT LEVEL A OR HIGHER 2012, 2013 AND 2014

Level A ● Level AA ● Level AAA ●



## ENVIRONMENTAL STEWARDSHIP

### Indicator 1: Corporate Biodiversity Conservation Commitment, Accountability and Communications

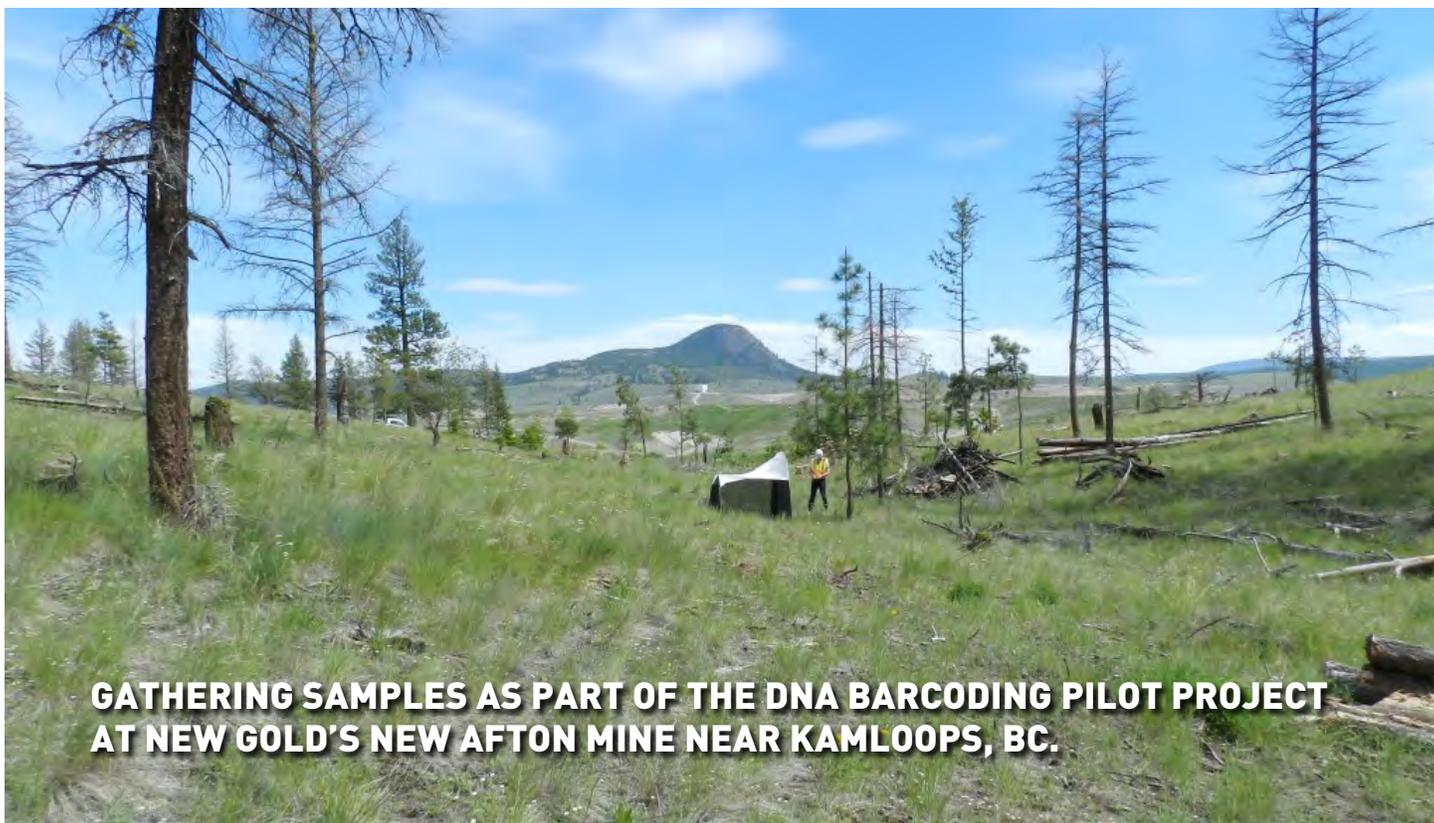
The first indicator in this protocol is designed to confirm whether corporate commitment and accountability are in place and are communicated to employees to support the management of biodiversity conservation issues. To achieve a Level A, facilities must be able to demonstrate that there is a corporate commitment consistent with the intent of MAC's *Mining and Biodiversity Policy Framework*, and that this commitment is communicated to key personnel, contractors and facility-level communities of interest. There must also be defined roles, responsibilities and accountabilities as well as assigned resources to support fulfilling this commitment.

***The percentage of facilities assessed at a Level A or higher for indicator 1 reached 68% in 2014 compared to 60% in 2013 and only 33% in 2012. The percentage of facilities that achieved a Level AAA in 2014 was 37%. These facilities demonstrated a commitment to actively partner with other organizations for biodiversity conservation.***

### Indicator 2: Facility-Level Biodiversity Conservation Planning, Implementation and Operation

The second indicator evaluates whether a facility has established and implemented effective plans and management systems to ensure that significant biodiversity aspects are managed. To achieve a Level A or higher, site-level senior management must implement a biodiversity conservation plan or management system. Facilities are expected to include elements such as establishing processes for monitoring, setting targets, consulting with key communities of interest and training employees.

***The percentage of facilities assessed at a Level A or higher for indicator 2 increased from 39% in 2012 to 52% in 2013 and to 65% in 2014. Of these facilities, 33% achieved a Level AAA. In order to achieve this level of performance, a facility must be able to demonstrate that biodiversity conservation is integrated into a broader business strategy.***



**GATHERING SAMPLES AS PART OF THE DNA BARCODING PILOT PROJECT AT NEW GOLD'S NEW AFTON MINE NEAR KAMLOOPS, BC.**

 ENVIRONMENTAL STEWARDSHIP**Indicator 3: Biodiversity Conservation Reporting**

The third indicator's purpose is to confirm that biodiversity conservation reporting systems are in place to inform decision making and to communicate performance publicly. Facilities are assessed on whether they have developed processes to track and report conservation efforts, implemented consistent approaches to monitoring and reporting, and reported performance both internally and externally.

***In 2014, 67% of facilities achieved a Level A or higher for indicator 3 compared to 55% in 2013. Like the results for indicators 1 and 2, the percentage of these facilities that achieved a Level AAA increased significantly, reaching 24% in 2014 compared to 15% in 2013.***

The following case studies illustrate how innovative thinking and collaboration with communities of interest, including Aboriginal communities, can advance biodiversity conservation and generate lasting benefits.

**CASE STUDY: VALE****Black bear management in bear country**

Near Vale's Voisey's Bay mine in Labrador, there can be upwards of 650 black bear sightings in any given year. In 2005, Voisey's Bay developed its innovative Black Bear Management Strategy that not only addresses the danger of working in bear country, but also respects the cultural importance of black bears to the Innu and Inuit people of Labrador. The strategy recognizes that, as a visitor to the region, the mine needs to co-exist in the remote area without negatively impacting the species. Preventing encounters is paramount and is accomplished by reducing attractants such as food and waste, and by restricting access to site buildings and infrastructure. This has resulted in many innovations over the years, often made in-house, about the storage and removal of food waste, and the installation of specially retrofitted door handles that prevent the bears from opening them with their paws. After observing small bear cubs climbing hydro poles on the property and perching at the top, the mine wrapped the poles with a special liner, making them too slippery for curious cubs to climb.

All new employees, contractors and visitors undergo training that includes information about black bears, what to do in an encounter, company policies and practices, and how to report sightings. Deterrents, like noise makers or rubber bullets, are used only when required to encourage a bear to leave an area and prevent an encounter with staff, or when a bear exhibits persistent or aggressive behaviour. In the event that a bear becomes more aggressive or repeatedly attempts to enter buildings or lunch rooms, Vale consults with government and Aboriginal stakeholders to trap and relocate the bear away from the mine site. As an absolute last resort, a bear may be put down if relocation attempts prove unsuccessful, but only following consultation with stakeholders. If put down, the meat and hide are prepared for the community freezer in Nain, the nearest community to the site. Thanks in large part to this strategy, there have been no mine personnel injuries as a result of an encounter with a black bear.



## ENERGY EFFICIENCY

Mining companies that participate in TSM practise continuous improvement by applying new technology, innovation and best practices in all facets of their operations. – TSM Guiding Principles

In 2009, MAC endorsed the International Council on Mining and Metals' (ICMM) policy on climate change, recognizing that comprehensive and sustained global action is required to reduce the scale of human-induced climate change and to adapt to its impact. The energy use and GHG emissions management protocol is an important tool to assist mining companies in implementing climate change commitments, such as those in ICMM's climate change principles, in a transparent way.

With underground mines developing new production zones at much greater depth, the energy intensity is rising because extra energy is required for ventilation, pumping, cooling, hoisting and sustaining the infrastructure at depth. As a result, the industry must continue to seek opportunities to reduce energy consumption. Through the development of comprehensive management systems, facilities participating in TSM can more effectively monitor and reduce their energy consumption and GHG emissions.

### ENERGY USE AND GHG EMISSIONS MANAGEMENT

Improving energy efficiency and reducing GHG emissions are priorities for the Canadian mining industry as a way to limit impacts to the environment and to help reduce operational costs at a facility.

The energy use and GHG emissions management protocol has three indicators that seek to confirm whether a facility has established a comprehensive system for energy use and GHG emissions. For this protocol, a facility must show that its management system includes assigned accountability from senior management, and that it has a process in place to ensure energy data are reviewed regularly and are well integrated into operator actions. Facilities are also expected to provide energy awareness training and have systems in place to track and report energy use and GHG emissions data for both internal and external reporting. Finally, in TSM's spirit of continuous improvement, this protocol seeks to confirm that facilities establish and meet targets for their energy use and GHG emissions performance.

Recognizing that energy use and GHG emissions are not a material business risk for all companies and facilities, a materiality threshold has been incorporated into the energy use and GHG emissions management protocol. Facilities whose GHG emissions are less than 25 kilotonnes of CO<sub>2</sub>e (carbon dioxide equivalent), or whose on-site energy usage is less than 25,000 gigajoules, are not required to report on indicators 1 or 3 of this protocol.

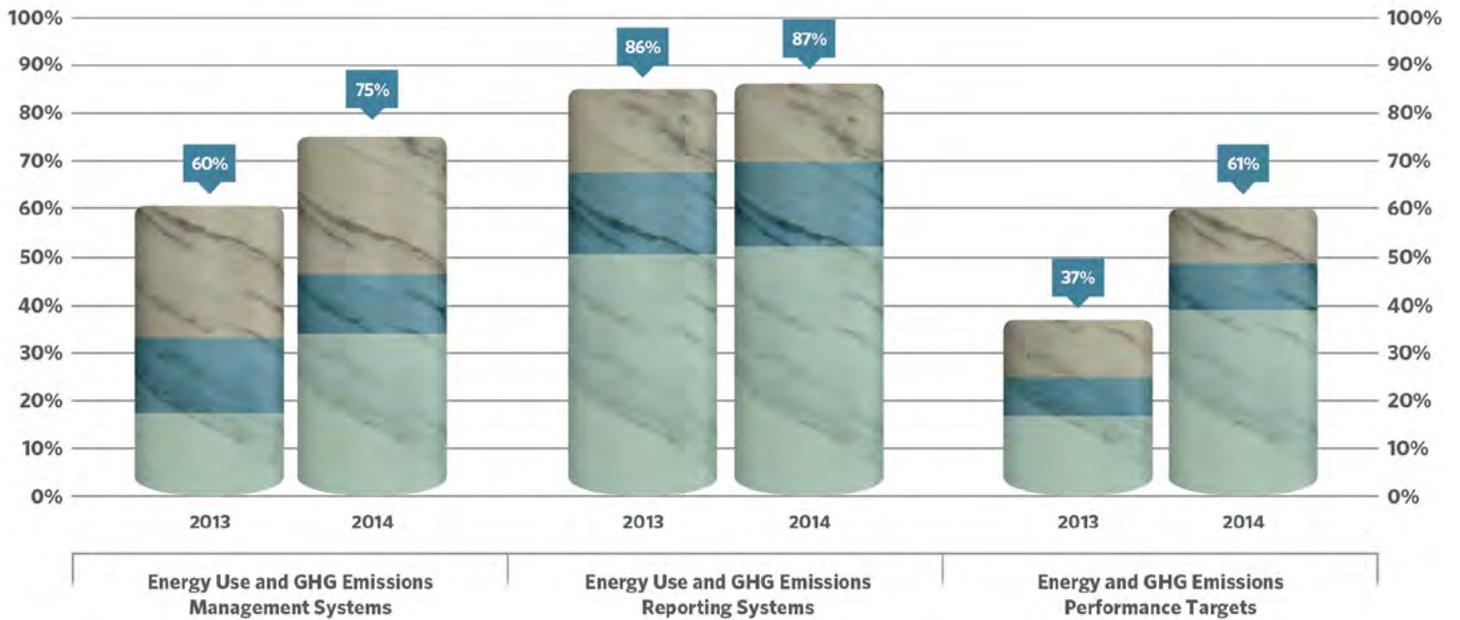
In 2013, a revised energy use and GHG emissions management protocol was introduced condensing the number of indicators for this protocol from six to three. This change acknowledged that in the mining sector, facilities produce GHGs primarily through the burning of fossil fuels for energy and, as such, GHG emissions are controlled by managing energy consumption. Historical data from 2006 to 2012 are available in the *2014 TSM Progress Report*. The graph that follows shows the 2013 and 2014 performance for the three indicators.



## ENERGY EFFICIENCY

### ENERGY USE AND GHG EMISSIONS MANAGEMENT PERCENTAGE OF FACILITIES AT A LEVEL A OR HIGHER 2013 AND 2014

Level A ● Level AA ● Level AAA ●



#### Indicator 1: Energy Use and GHG Emissions Management Systems

This indicator seeks to confirm that systems are in place to manage energy use and GHG emissions. Facilities that achieve a Level A rating under indicator 1 of this protocol are able to demonstrate that clear accountability for energy use and GHG emissions management is assigned to operational managers, and that energy and GHG awareness training is in place.

Facilities that are assessed at Levels AA and AAA are considered leaders within the industry. These facilities are able to demonstrate that energy use and GHG emissions management is integrated into their broader business strategies and look beyond the company for opportunities to optimize energy use and reduce GHG emissions. Examples of such leadership include working with the supply chain to reduce energy consumption and/or GHG emissions, investments in research and development or renewable energy projects, and engagement with communities of interest in education and outreach activities.

***In 2014, 75% of facilities reported a Level A or higher for having a comprehensive energy use and GHG emissions management system—an increase of 17% year-over-year for indicator 1.***

#### Indicator 2: Energy Use and GHG Emissions Reporting Systems

In order to make the right decisions concerning energy management, a facility must have processes in place to track and report performance. Facilities that achieve a Level A under indicator 2 of this protocol have developed and implemented a system to provide robust data for internal use and for public reporting. Essentially, the reporting system should provide confidence that the right people have the right data.

Facilities that report Levels AA and AAA under this indicator have had their reporting systems internally or externally verified, respectively, to assess the effectiveness and adequacy of their reporting system, and the



## ENERGY EFFICIENCY

accuracy and reliability of the reported data. Facilities that go beyond the requirements of a Level A will also publicly report their performance against specified targets.

*The 2014 results for indicator 2 remained strong, with 87% of facilities reporting a Level A or higher.*

### Indicator 3: Performance Targets

Companies set targets and goals for many aspects of their business. Effective energy use and GHG emissions management systems also involve establishing targets.

To achieve a Level A for this indicator, facilities must not only establish a target for energy use and GHG emissions, but they must also meet these targets within the reporting year. To be assessed at Levels AA or AAA for this indicator, facilities must meet their established targets for the last three out of four years, and have their performance internally or externally verified.

*In 2014, results for indicator 3 show significant improvement from 2013, with 60% of facilities assessed at a Level A or higher compared to only 37% in 2013.*

The following case studies highlight some of the ways mining companies can achieve high levels of performance in the TSM energy use and GHG emissions management protocol.



**WIND FARM AT RIO TINTO'S DIAVIK DIAMOND MINE IN THE NORTHWEST TERRITORIES.**

 ENERGY EFFICIENCY**CASE STUDY****Harnessing the power of wind to reduce environmental impacts and save energy costs**

Driven by the need to have reliable access to a cost-efficient energy supply and in an effort to reduce environmental impacts, a growing number of mining companies are exploring greater use of renewable energy as an alternative to conventional energy sources. The following examples highlight the positive impacts of the mining industry's growing exploration and adoption of renewable technologies in remote regions.

**RAGLAN MINE**

The northern location of Glencore's Raglan Mine meant it lacked access to the provincial power grid or the natural gas network, creating a heavy reliance on costly diesel fuel. With energy being the second-largest budget item at the mine, there was a strong business case for Glencore to explore renewable energy solutions. Sitting on a plateau 600 metres high on the Ungava Peninsula in northern Quebec, the mine is well suited to take advantage of wind power. In 2014, the company did exactly that when it completed its construction of a 120-metre-high wind turbine, the largest in Quebec.

The three-megawatt wind turbine is on its way to achieving savings estimated at more than \$40 million in fuel, operation and maintenance over its 20-year life. At the end of the first half of 2015, the turbine had already saved 1.7 million litres of diesel and displaced the equivalent of 4,838 tonnes of CO<sub>2</sub> emissions. According to these results, the Raglan Mine is expected to save approximately 2.4 million litres of diesel and more than 6,000 tonnes of CO<sub>2</sub> annually over the next two decades.

The wind turbine will eventually be coupled with a 1.8-megawatt wind energy storage facility – the first of its kind in the Canadian Arctic. Based on the success of this pilot project, Glencore will consider installing additional turbines that could generate a total of nine to 12 megawatts of energy, reducing the mine's overall diesel consumption by 40%. The company wants to also share the results and the expertise of its research and development investment with 14 local Nunavik villages that are currently not connected to the electrical grid.

**DIAVIK DIAMOND MINE**

The Diavik Diamond Mine, a joint venture of Rio Tinto and Dominion Diamond Corporation, is located in Lac de Gras, Northwest Territories. Since becoming operational in September 2012, the mine's wind farm has generated much attention for harnessing wind energy to reduce its environmental footprint.

The driving force behind the wind farm was the off-grid mine's reliance on diesel fuel to power its operations, amounting to over 50 million litres needed per year at an annual cost of approximately \$70 million. The fuel must also be transported by ice road, exposing the remote mine's vulnerability to varying climate conditions. The 9.2-megawatt four-turbine wind farm has made Diavik the site of the world's largest wind-diesel hybrid power facility, and represents the first large-scale wind farm constructed in the Northwest Territories. Diavik's \$31 million investment, fully funded by the joint venture partners, has reduced the mine's 2014 diesel fuel consumption by 4.9 million litres. For the year, the wind farm has supplied 11% of the mine's power, producing 19.9 gigawatt hours, and peaking at 55% power penetration. For 2014, CO<sub>2</sub>e offset was 14,068 tonnes. The wind farm, operational to minus 40oC, is currently operating at 98% availability.

The award-winning wind farm was recognized with the Canadian Wind Energy (CanWEA) 2013 Group Leadership Award for contributing significantly to the advancement of wind energy in Canada, and the 2013 Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists environmental award.

 ENERGY EFFICIENCY
**CASE STUDY: NEW GOLD INC.****Using TSM and ISO 50001 to boost energy efficiency**

In the mining industry, it comes as no surprise that energy efficiency offers both economic and social value. As a result, a growing number of mining companies are turning to energy standards and programs to boost efficiency and reduce GHG emissions, including TSM and ISO 50001. New Gold Inc., however, has discovered the benefits that can result when pairing TSM and ISO 50001 in its energy management policy.

Like TSM, ISO 50001 is an energy management standard that helps integrate energy performance improvement into management practices and helps drive continual improvement. In 2014, New Gold's New Afton Mine, west of Kamloops in British Columbia, became the first mine in North America to achieve ISO 50001 certification – a significant achievement.

New Afton's journey towards certification began years ago—even before the mine started producing. In 2012, the company implemented a comprehensive energy management information system. This was supported by BC Hydro, which provided funding towards energy analysis and a full-time staff member to focus entirely on energy management. Shortly thereafter, New Gold implemented a monitoring and measurement system with ISO 50001 in mind. The company then teamed up with the Canadian Industry Program for Energy Conservation, which is managed by Natural Resources Canada. The program provided support for the mine's ISO 50001 certification.

The New Afton Mine is also participating in the TSM initiative. The mine's 2014 results for the TSM energy use and GHG emissions management protocol were strong, achieving a Level AAA for its management system, a Level AA for its reporting systems, and a Level A for setting and meeting its performance targets. Together, TSM and ISO 50001 have helped New Afton minimize waste, maximize efficiency and reduce environmental impacts, all while saving energy costs.

The mine has four main components that utilize more than 75% of the mine's energy: grinding, crushing and conveying, ventilation, and mobile equipment. The mine's energy policy places a big focus on making small improvements to each of these four energy drivers, which in turn translate into savings. For example, the mine undertook a project to improve its ventilation system, a \$510,000 investment that has allowed the mine to avoid energy use of more than 7,800 megawatt hours per year. This translates into a savings of approximately \$300,000 annually.

**Federal government makes funding available for high performance in TSM energy protocol**

Mining companies pursuing energy management best practices to increase energy efficiency and reduce GHG emissions through the TSM initiative can now qualify for funding through the Canadian Industry Program for Energy Conservation (CIPEC), managed by Natural Resources Canada (NRCan).

CIPEC is a voluntary partnership between the Government of Canada, industrial companies, associations and many others. CIPEC funding is available for mining companies that are pursuing Levels A, AA or AAA (the highest levels of TSM performance) in the TSM energy use and GHG emissions management protocol. Qualified mines can receive funds for up to 50% of eligible costs to a maximum of \$40,000. The funding for this initiative comes from NRCan's ecoENERGY efficiency program.

This partnership recognizes TSM's effectiveness in improving energy management practices at Canadian mining operations as a way to reduce energy costs, improve competitiveness and reduce GHG emissions.



# TSM AWARDS

**PRESENTATION OF THE TSM LEADERSHIP AWARD TO FIRST QUANTUM'S ÇAYELI MINE.  
(LEFT TO RIGHT: PIERRE GRATTON, MAC; MEHMET E RIBOYUNO LU, FIRST QUANTUM)**





## TSM EXCELLENCE AWARDS – 2015 RECIPIENTS

The TSM Community Engagement Excellence Award and the TSM Environmental Excellence Award are intended to acknowledge companies, facilities and individuals that have implemented projects and initiatives that expand and promote sustainable development within the mining sector.

### TSM COMMUNITY ENGAGEMENT EXCELLENCE AWARD – 2015 FINALISTS

**WINNER:** Vale: Diversifying economic prosperity in Thompson, Manitoba

Iron Ore Company of Canada: Collaborating on common priorities in Labrador West

De Beers Canada: Books in Homes literacy program in the Northwest Territories

IAMGOLD Corporation: Multi-functional platform produces new opportunities for local women

### TSM ENVIRONMENTAL EXCELLENCE AWARD – 2015 FINALISTS

**WINNER:** Dominion Diamond Ekati Corporation and Diavik Diamond Mine Inc.:  
Grizzly bear monitoring in the Northwest Territories

Vale: Black bear management in bear country

IAMGOLD Corporation: Growing green spaces at local schools in Burkina Faso



 TSM EXCELLENCE AWARDS – 2015 RECIPIENTS

## WINNERS OF THE 2015 TSM EXCELLENCE AWARDS

For their innovative projects that raise the bar for corporate responsibility in the Canadian mining sector, Vale, Dominion Diamond Corporation and Diavik Diamond Mine Inc. were recognized with the 2015 Towards Sustainable Mining (TSM) Excellence Awards at the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Awards Gala in Montreal in May 2015.

A total of 16 nominations were submitted by mining companies that participate in the TSM initiative. The selection committee, comprising members from MAC's COI Advisory Panel, selected the finalists based on criteria such as innovation, involvement of and engagement with communities, and project outcomes. TSM performance was also considered as an indicator of the company's ongoing commitment to corporate responsibility.

## TSM COMMUNITY ENGAGEMENT EXCELLENCE AWARD 2015 WINNER:

### Vale's Manitoba Operations

In November 2010, Vale's Manitoba Operations in Thompson announced that it would scale back its operations to mining and milling only by 2015. Recognizing the importance of mining to the region's economy, Vale immediately set to work to mitigate possible community risks of the partial decommissioning project – a full five years before it would occur. In 2011, Vale engaged and fully funded rePlan, co-launching a multi-stakeholder group, the Thompson Economic Diversification Working Group (TEDWG), that would work collaboratively on action plans to spur economic development and diversification in the region.

The TEDWG involved a broad set of stakeholders, including representatives from Vale, Keewatin Tribal Council, Manitoba Keewatinowi Okimakanak, Nisichawayasihk Cree Nation, the City of Thompson, the Manitoba Métis Federation, the Province of Manitoba, and the Thompson Chamber of Commerce. They were united in one common purpose: to accelerate Thompson's development as a regional service centre for northern Manitoba, with mining as a strong economic pillar. Priorities were determined through community engagement and included housing, education and training, regional identity and tourism, economic development, and infrastructure, among others. Over the course of two and half years, the TEDWG's work resulted in the development of socio-economic action plans and a regulatory framework that are currently being implemented, as well as enduring relationships that were built upon 20,000 hours of inclusive and respectful engagement. Vale's total investment in the TEDWG was over \$2 million, and the process has been widely celebrated as best practice. In fact, the "TEDWG way" has become a common phrase in Thompson for how to bring people together to create positive socio-economic change, and the model is currently being applied elsewhere in Manitoba.

## TSM EXCELLENCE AWARDS - 2015 RECIPIENTS

### TSM ENVIRONMENTAL EXCELLENCE AWARD 2015 WINNERS:

Dominion Diamond Corporation and Diavik Diamond Mine Inc.

When regulators, monitoring agencies and community stakeholders asked for a grizzly bear monitoring program, the Ekati Diamond Mine (operated by Dominion Diamond Corporation) and the Diavik Diamond Mine (operated by Rio Tinto) responded by developing a new program that went over and above their environmental monitoring requirements. The Joint Regional Grizzly Bear DNA Program was designed to assess bear population trends and to determine if mining-related activity influenced the relative abundance and distribution of grizzly bears over time.

Following a successful pilot study, the program began its initial two-year phase in 2012, and the gathering of baseline population data was completed in 2013. The study area covered 16,000 square kilometres of the Central Barrens encompassing the two mine properties. The area was divided into a grid of 12 x 12-kilometre sections, with one post located in each grid square, for a total of 112 posts. Traditional knowledge was sought by community elders and land users for the posts' development and placement. The posts were constructed with mechanisms to bait the bears and cause hair samples to be left behind that were then collected for DNA analysis. A total of 1,902 hair samples were collected in 2012, and 112 grizzly bear individuals were identified. In 2013, this number rose to 4,709 samples, and 136 grizzly bear individuals were identified, 39 of which had not been detected previously. The results suggest a detection frequency of 9 to 11 bears/1,000 square kilometres, above estimates from the 1990s where the frequency was 3.5 bears/1,000 square kilometres, indicating a stable or increasing bear population in the region.

This project, the largest grizzly bear DNA program in the Northwest Territories, was the first major collaboration between diamond mines in the region. Recently, De Beers' Snap Lake Mine and Gahcho Kué project have come on board, doubling the initial study area to over 30,000 square kilometres. Based on its success, the Government of Nunavut has also deployed similar programs at Back River, Hackett River, Courageous Lake, Izok, Hope Bay, and in the eastern Arctic.



**(LEFT TO RIGHT) BEN CHALMERS, MAC; CAROLYN CHISHOLM, RIO TINTO (DIAVIK); LOVRO PAULIC, VALE; KIRK REGULAR, VALE; CLAUDINE LEE, DOMINION DIAMOND; SEAN WALLER, CIM PRESIDENT; AND PHILIP OXHORN, MAC COI ADVISORY PANEL MEMBER.**



## TSM LEADERSHIP AWARDS – 2015 RECIPIENTS

A TSM Leadership Award is granted only when a facility meets or exceeds a Level A ranking in its results for the tailings management, energy use and GHG emissions management, Aboriginal and community outreach, biodiversity conservation management and safety and health protocols, and indicates “yes” for all three crisis management indicators. To be eligible for a TSM Leadership Award, a facility’s results must have been externally verified.

### TSM LEADERSHIP AWARDS – 2015 RECIPIENTS

The following facilities were granted TSM Leadership Awards for their 2014 results:

Agnico Eagle Mines Limited, Goldex mine

Agnico Eagle Mines Limited, Kittila mine

Agnico Eagle Mines Limited, LaRonde mine

First Quantum Minerals, Çayeli mine

IAMGOLD Corporation, Essakane Gold Mine

IAMGOLD Corporation, Rosebel Gold Mines N.V.

IAMGOLD Corporation, Westwood Mine

Teck Resources Limited, Line Creek Operations





# INTERNATIONAL INITIATIVES



## INTERNATIONAL INITIATIVES

### INTERNATIONAL SOCIAL RESPONSIBILITY

#### INTERNATIONAL SOCIAL RESPONSIBILITY

While mandatory for their Canadian facilities, a growing number of MAC members are voluntarily applying TSM standards and publicly reporting performance for their international facilities. This includes First Quantum Minerals, Agnico Eagle Mines Limited and IAMGOLD Corporation. Although not yet publicly reporting performance, New Gold and Hudbay Minerals are applying TSM to their international properties. In doing so, these companies demonstrate that they are managing their responsibilities throughout the world to the same high standard as their Canadian operations.

Besides TSM, many other organizations and initiatives work to drive environmental and social performance in the mining sector. International application of TSM is not always feasible for all companies, and many MAC members participate in various international initiatives to foster performance improvement. The table on page 51 summarizes the implementation of these standards globally.



**STUDENT PARTICIPATING IN IAMGOLD'S INITIATIVE TO GROW GREEN SPACES AT SCHOOLS IN BURKINA FASO.**

## INTERNATIONAL INITIATIVES

**MAC MEMBER  
COMPANY  
APPLICATION OF  
INTERNATIONAL  
STANDARDS  
AND PROGRAMS**

\*Applied at international facilities.  
\*\*TSM is applied at international facilities, but results are not reported publicly.

MAC MEMBER COMPANY APPLICATION OF INTERNATIONAL STANDARDS AND PROGRAMS	Industry Sustainability Initiatives		Management System Standards		International Voluntary Initiatives				Reporting, Disclosure and Transparency Standards				Financing Standards	Listed on Socially Responsible Investing Indices	Commodity Specific Standards			
	MAC Towards Sustainable Mining*	ICMM Sustainable Development Framework	WGC Conflict Free Gold Standard	ISO 14001: EMS Standard	OHSAS 18001	UN Global Compact	Extractive Industries Transparency Initiative	Voluntary Principles on Security and Human Rights	OECD Guidelines for Multinational Enterprises	AA 1000	Global Reporting Initiative	Carbon Disclosure Project	Water Disclosure Project	IFC Social and Environmental Performance Standards	Dow Jones Sustainability Index	Jantzi Social Index	Responsible Jewellery	International Cyanide Code

## COMPANIES/BUSINESS UNITS HEADQUARTERED IN CANADA WITH INTERNATIONAL OPERATIONS

Agnico Eagle Mines Ltd.	X									X	X		X		X	X	NA	
Barrick Gold Corporation		X	X	X		X	X	X	X	X	X	X	X			X	NA	
IAMGOLD Corporation	X			X	X			X		X	X		X		X		NA	
Kinross Gold Corporation			X	X	X	X	X			X	X	X	X	X	X		NA	
HudBay Minerals Inc.**	X			X	X		X			X	X	X	X			NA	NA	NA
First Quantum Minerals Inc.	X					X	X	X			X		X			NA	NA	NA
Teck Resources Limited **	X	X		X		X	X	X		X	X	X	X	X	X	NA	NA	NA
Vale (Base Metals)				X	X	X	X	X		X	X	X	X			NA	NA	NA
New Gold Inc.**	X		X	X	X	X				X	X				X	NA	X	NA
Eldorado Gold			X	X	X					X	X	X					X	NA
Goldcorp		X	X		X	X	X		X	X	X	X					X	NA

## COMPANIES HEADQUARTERED OUTSIDE OF CANADA WITH CANADIAN OPERATIONS

Glencore		X	NA	X	X	X	X	X		X	X	X	X	X		NA	NA	NA
De Beers Canada Inc.**	X	X		X	X	X	X	X	X	X	X	X	X			X	NA	X
Newmont Mining Corporation		X	X	X	X	X	X	X	X	X	X	X	X	X	X	NA	X	NA
Rio Tinto		X		X	X	X	X	X		X	X	X	X	X		X	NA	X
ArcelorMittal				X	X		X			X								

## INTERNATIONAL INITIATIVES

### INTERNATIONAL SOCIAL RESPONSIBILITY (ISR) COMMITTEE

MAC's ISR Committee has made it a priority to push the mining industry beyond the status quo when it comes to international social responsibility. The committee's focus in 2014 was on the completion of a framework for mandatory disclosure of payments made to governments derived from mining activities. The committee also worked with the Office of the Extractive Sector CSR Counsellor to develop a guidance document that would address common challenges with implementing site-level grievance mechanisms.

#### *Extractive Sector Transparency Measures Act*

In 2012, MAC partnered with Publish What You Pay-Canada, the Natural Resources Governance Institute (formerly the Revenue Watch Institute) and the Prospectors & Developers Association of Canada (PDAC) to develop recommendations that would inform the development of a regime for the mandatory disclosure of payments made to governments derived from mining activities.

Known as the Resource Revenue Transparency Working Group (RRTWG), the members worked towards a common goal of establishing greater transparency in the mining industry in Canada and overseas. The outcome of this work will ultimately provide communities with the financial information they need to hold their governments accountable for the use of mining revenues. The initiative involved high levels of collaboration and consultation with stakeholders over a period of a year and a half. The structure of the RRTWG provided a platform for industry and civil society to build a mandatory disclosure framework that reflected the needs and perspectives of both parties.

The RRTWG's final framework was completed and formally announced in January 2014. A second milestone was reached in November 2014 when the federal government tabled the *Extractive Sector Transparency Measures Act*. The Act received royal assent a month later.

While much of the Act is consistent with the RRTWG's framework, the federal government has gone beyond the scope of the group's recommendations by including payments to Aboriginal governments. In doing so, this raised additional issues requiring further consideration. However, the federal government delayed the implementation of this provision for two years after the Act came into force to allow for further consultation with Aboriginal governments and organizations. MAC's ISR Committee will continue to work with Natural Resources Canada and other relevant government departments to achieve an orderly and practical implementation of this Act. This will include engaging with government on its development of a guidance document intended to assist companies in complying with the reporting requirements. It will continue to be a priority for the committee to ensure equivalency provisions are used appropriately to align with reporting obligations in other jurisdictions such as the United Kingdom.

#### Human Rights - Remedy and Site-Level Grievance Mechanisms

In early 2014, the ISR Committee commissioned Dr. Craig Ford to develop a guide that would help companies overcome common implementation challenges related to site-level grievance mechanisms at the mine site and community levels. The idea for this project stemmed from a workshop jointly hosted by the committee and the CSR Counsellor in late 2013. While MAC already contributes to the body of practice in community response mechanisms through the TSM Aboriginal and community outreach protocol, it was felt that MAC could further contribute by documenting the combined experience of members and experts in the areas of:

- Challenges with building awareness of the mechanism and trust in communities.
- Challenges with securing internal buy-in at the site level from the people that engage with the community and from other key departments.
- Challenges with gaining consistency of practice across a diverse range of sites.

## INTERNATIONAL INITIATIVES

A draft of the guide was completed by the end of 2014 and was reviewed by several leading experts on dispute resolution.

The guide will complement a number of existing guidance documents that address the design elements of grievance mechanisms. With this project, MAC takes another step forward in its efforts to identify CSR challenges and contribute to solutions. The guide will underscore the importance of dispute resolution at an early stage and at the community level, and will help companies build effective site and community-level grievance mechanisms. This guide was published in 2015.

### OECD Stakeholder Engagement Due Diligence Project

Since 2013, MAC has been working with industry and civil society representatives on the development of an OECD guide focused on due diligence in stakeholder engagement, as it applies to extractive industries. This project is sponsored jointly by Canada and Norway, and has been accepted as part of the OECD Proactive Agenda that covers topics relevant to mining, including work on artisanal and small-scale mining, conflict minerals and profit shifting (transfer pricing). To guide this project, the OECD formed a multi-stakeholder advisory group, co-chaired by Canada and Norway, in June 2013. At the request of the Government of Canada, MAC joined other associations in this advisory group, such as the International Council on Mining and Metals and the World Gold Council, to ensure the guide is useful for industry. MAC's value to the project is its expertise derived from the TSM initiative which, through the Aboriginal and community outreach protocol, has established a useful site-level tool for due diligence on engagement systems.

During 2014, the advisory group helped develop and reviewed several drafts of the guide, which was prepared by a consultant hired by the OECD. The OECD is expected to release a draft for public review in the first half of 2015, with final publication in the second half.

### Canada's Extractive Sector Trade and CSR Strategies

In late 2013 and early 2014, the ISR Committee developed a series of policy recommendations intended to strengthen the federal government's CSR Strategy. These recommendations were submitted as part of a five-year review of the strategy launched by the Minister of International Trade. They also promoted strengthened roles for the Office of the Extractive Sector CSR Counsellor and the OECD National Contact Point, and outlined the consequences for companies that choose not to participate in these processes.

In November 2014, the federal government launched two strategies to support Canadian mining abroad, the new Extractive Sector Trade Strategy and the enhanced CSR Strategy, *Doing Business the Canadian Way: A Strategy to Advance Corporate Social Responsibility in Canada's Extractive Sector Abroad*.

The enhanced CSR Strategy, which incorporated several of MAC's recommendations, sets expectations for companies to adhere to international standards regarding social and environmental practices. It also strengthens and coordinates Canada's international dispute resolution mechanisms, and the roles of the CSR Counsellor and the OECD National Contact Point. This new coordination creates a front-end screening role for the CSR Counsellor and establishes the National Contact Point as the mechanism for mediation. In addition to adding new CSR standards, such as the United Nations' Guiding Principles on Business and Human Rights, the strategy also references MAC's TSM initiative.

Taken together, these two strategies are a welcome sign that Canada supports and promotes a strong and vibrant Canadian mining sector, both at home and abroad. With these strategies, the Government of Canada is also setting the bar high for corporate responsibility performance and furthering Canada's position as a global leader in the extractive sector.

## INTERNATIONAL INITIATIVES

### FINLAND ADOPTS MINING ASSOCIATION OF CANADA'S CSR PROGRAM

By Pierre Gratton, President and CEO, The Mining Association of Canada (MAC) and Pekka Suomela, Executive Director, Finnish Mining Association (FinnMin)

Public confidence in the mining industry is earned in a couple of ways. Confidence in government oversight is one part; the other is how well the industry runs its business. Corporate social responsibility (CSR) and social license are two terms frequently identified with the latter.

Over the past 10 to 15 years, industry leaders, academics, NGOs, consultancies, investment institutions and others have contributed to defining what CSR or social license means, in practice. Having social license is akin to enjoying community support for one's project or ongoing activities in a region. Social license is earned on the ground, day in and day out. It can also be quickly lost and, for major natural resources projects, a lack of social license can mean a failure to proceed despite meeting all formal regulatory requirements. For the past several years, Ernst & Young has identified social license as one of the top business risks facing the mining and metals business today.

CSR describes actions and behaviour undertaken by businesses to demonstrate responsible business conduct, obtain reputational benefit and, in essence, earn social license. Over the past decade, dozens of initiatives have emerged against which mining companies measure their CSR performance, such as the Global Reporting Initiative, the Dow Jones Sustainability Index, the Carbon Disclosure Project, to name just three. In the effort to demonstrate responsible behaviour, the burden of public reporting expectations has grown exponentially, with corporate divisions set up just to manage the collection and reporting of data. What's often missing, however, is the "how to" guidance to companies on implementing CSR best practices and earning social license.

A little over ten years ago, however, the Mining Association of Canada launched a unique stewardship program that does just that, called the *Towards Sustainable Mining* Initiative or *TSM*. After many years of ongoing debate in Finland about the value of mining to the Finnish economy, which intensified after a tailings dam failure three years ago, the Finnish Mining Association embarked on a process of multi-stakeholder introspection, which included a global search for practical programs that would help to restore public trust in its economically important domestic mining industry. In November, they announced their decision – FinnMin would join Canada by adopting *TSM* in Finland.

There are several elements that make *TSM* unique and practical. First, while *TSM*'s development and implementation have benefitted enormously from multi-stakeholder input, it is still a program designed by miners for site-level application, with easy integration into, or for the development of, ISO systems. Mandatory for MAC members, *TSM* requires mining companies to annually evaluate their facilities' performance across six areas critical to operational success and public confidence: tailings management, Aboriginal and community outreach, safety and health, biodiversity conservation, crisis management, and energy use and greenhouse gas emissions management. The program uses a scale akin to the investment world; grades of C,B,A, AA or AAA are assigned to a total of 23 performance indicators measuring distinct aspects of the six performance areas (with the exception of crisis management, which uses a Yes/No evaluation of crisis preparedness). Performance results are published annually, and are externally-verified every three years to assure that what is reported is accurate and can be trusted. For stakeholders, including investment risk managers, *TSM* provides a useful snapshot on how well a company is managing major risks.

## INTERNATIONAL INITIATIVES

Fully operational in Canada for a decade, *TSM* comes with a range of supporting tools and guides, including an online training program, guides on implementing crisis management and energy and GHG management systems, and a full suite of guidance on tailings management and audit systems. Available in English, French and Spanish, and soon Finnish, *TSM* is fully exportable with some minor adjustments to take into account domestic circumstances and priorities, which Finland has made. In fact, FinnMin is already working on new performance indicators to address water and closure issues, expanding *TSM*'s breadth in response to local stakeholder concerns.

To ensure it reflects the expectations of civil society and industry stakeholders, *TSM* is supported both in Canada and Finland by national, multi-stakeholder advisory bodies. In Canada, the *TSM* Advisory Panel, established in 2004, includes representatives from the ENGO community, academia, organized labour, the faith community, Aboriginal representatives, citizens from local mining communities and the financial sector. This panel's fundamental purpose is to challenge the industry, keep it honest and moving forward. It has played a critical role since its inception on guiding the development of *TSM*, and by engaging in the verification process by conducting post-verification reviews of mining company performance. FinnMin's advisory body, formed three years ago, has been instrumental in leading the Finnish mining industry to taking the bold decision to adopt *TSM*, and will play a similar role to its Canadian counterpart in the future.

MAC and FinnMin are very excited by this development, and see tremendous potential to work together to share learnings and strengthen each other's efforts in the coming years. Hopefully, we will also convince the mining industry in other countries to follow our lead. Then, together, we can work to raise the global public's trust in mining and pave a way for a successful, sustainable future. Article published in Mining Journal, November 3, 2015.



**THE FINNISH MINING ASSOCIATION (FINNMIN) SIGNS A TSM LICENSING AGREEMENT AT THE FENNOSCANDIAN EXPLORATION AND MINING CONFERENCE. (LEFT TO RIGHT: BEN CHALMERS; MAC, PIERRE GRATTON; MAC, MARKUS EKBERG, CEO OF ENDOMINES OY AND CHAIRMAN OF THE FINNMIN BOARD OF DIRECTORS.) CREDIT: HAYDEN LLOYD/FEM.**



# MEASURING COMPANY PERFORMANCE



## MEASURING COMPANY PERFORMANCE

### MEASURING COMPANY PERFORMANCE

This section of the report presents facility-level results for all companies participating in TSM. The number of facilities participating in TSM continues to grow. In 2006, 49 facilities publicly reported performance, and in 2014, this number grew to 63 facilities. This section includes externally verified results for seven companies (Agnico Eagle Mines Limited, Cameco Corporation, Dominion Diamond Corporation, First Quantum Minerals Ltd., IAMGOLD Corporation, Imperial Metals Corporation, Taseko Mines Limited and Teck Resources Limited\*).

Besides being MAC members, many companies in this report belong to either the Mining Association of British Columbia or the Québec Mining Association, which are both formal participants in TSM. Each company's affiliation is indicated by the following logos:

Mining Association of Canada | Mining Association of British Columbia | Québec Mining Association



**VALE'S OPERATIONS IN SUDBURY, ONTARIO.**

\*Teck Resources Limited conducts verification for a sample of its facilities on an annual basis. In 2014, Teck's Coal Mountain operations, Line Creek operations and its corporate office (crisis management) were externally verified.





## AGNICO EAGLE

### COMPANY PROFILE - AGNICO EAGLE MINES LIMITED

Agnico Eagle is a senior Canadian gold mining company that has produced precious metals since 1957. The company's eight mines are located in Canada, Finland and Mexico, with exploration and development activities in each of these regions as well as in the United States.

Agnico Eagle's four fundamental values of operating safely, respecting its employees, protecting the environment and respecting its communities are integral to the company's culture and social responsibility leadership. In 2014, Agnico Eagle improved its performance in the areas of health and safety, water management and community engagement. The company also identified opportunities to improve its energy management and greenhouse gas emissions. Agnico Eagle is aiming to achieve an overall Level A TSM rating at all its facilities. In 2014, the company continued to train its divisions in TSM implementation and conducted an external audit of the initiative. The company's external verification against the TSM indicators is presented in this report. Agnico Eagle took steps to further integrate its sustainable development program into all aspects of its business through the development and implementation of an internal Health, Safety, Environment and Community Relations (HSEC) Management System, labelled the Responsible Mining Management System (RMMS). The following are highlights in sustainable development for 2014:

- Safety First:** The Quebec Mining Association recognized 20 supervisors from the LaRonde, Lapa and Goldex mines for achieving more than 50,000 hours without any compensable accidents. As well, 15 supervisors at Canadian Malartic were recognized for achieving 50,000 to 300,000 consecutive hours without any compensable accidents from July 1, 2013 to June 30, 2014. Agnico Eagle was honoured with a Safety Performance Award at the Intelx Software User Conference for demonstrating outstanding improvements in health and safety performance.
- Combined lost-time accident frequency:** Agnico Eagle's combined lost-time accident and restricted work frequency was 1.48 – a 13% reduction from the previous year's performance and substantially below the company's target rate of 2.1. This is the fourth year in a row that Agnico Eagle has posted its lowest-ever combined rate. Unfortunately, after operating 1,370 days without a fatality, a tragic accident took the life of a contract employee at the Pinos Altos underground shaft project.
- Responsible Mining Management System:** In 2014, Agnico Eagle continued development and implementation of its RRMS, the company's internal HSEC Management System. Its approach is not to seek certification but to ensure that its system is consistent with the ISO 14001 standard for environmental management and the



## COMPANY PROFILE

## AGNICO EAGLE MINES LIMITED

OHSAS 18001 standard for health and safety management. System documentation is supported by Intalex software. The RMMS is designed to integrate management of the requirements of the TSM initiative, the International Cyanide Management Code, the Carbon Disclosure Project, the Global Reporting Initiative, and the Conflict-Free Gold Standard.

- **GHG emissions intensity:** Agnico Eagle's average direct and indirect GHG emissions intensity (the tonnes of CO<sub>2</sub> equivalent per tonne of ore processed) for all of its operating mines in 2014 was 0.0204, a 28% reduction from 0.0285 in 2013.
- **Socially Responsible Company:** In 2014, Agnico Eagle Mexico was recognized for the seventh consecutive year by the Chihuahuan business foundation with an award of distinction for being a "Socially Responsible Company." The company was also awarded the top prize for "Responsibility" by the Central Abitibi Chamber of Commerce and Industry. This award recognizes companies that demonstrate effective management and sound governance of their social responsibility programs.
- **Great Place to Work:** Agnico Eagle Mexico sites (Pinos Altos, Creston Mascota and La India) were recognized in the Great Place to Work rankings for northwest Mexico.

FOR MORE INFORMATION, PLEASE VISIT: [WWW.AGNICOEAGLE.COM](http://WWW.AGNICOEAGLE.COM)



**AQUATIC MONITORING WITH THE UNIVERSITY OF GUELPH AT THE MEADOWBANK MINE IN NUNAVUT.**

# MEASURING COMPANY PERFORMANCE

## AGNICO EAGLE MINES LIMITED



### CRISIS MANAGEMENT PLANNING ASSESSMENT

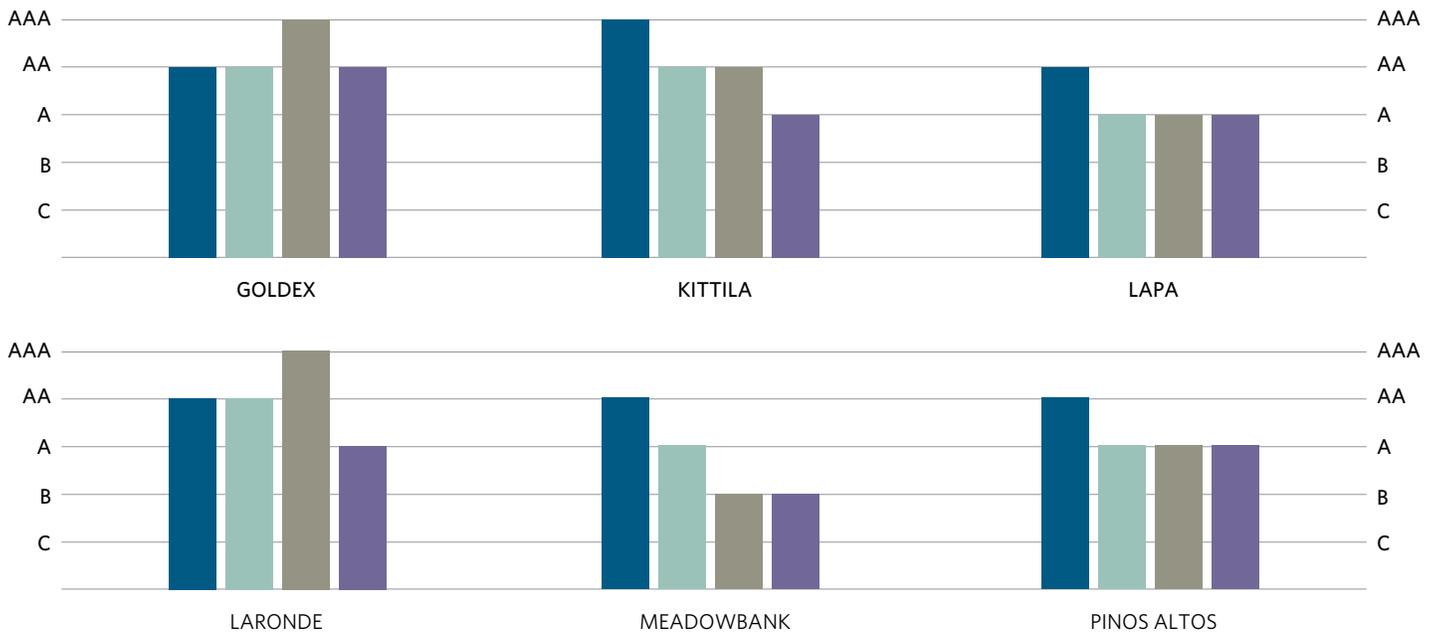
Externally Verified

FACILITY	PREPAREDNESS	REVIEW	TRAINING
AGNICO EAGLE CORPORATE	✓	✓	✓
GOLDEX	✓	✓	✓
KITTILA	✓	✓	✓
LAPA	✓	✓	✓
LARONDE	✓	✓	✓
MEADOWBANK	✓	✓	✓
PINOS ALTOS	✓	✓	✗



### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



# MEASURING COMPANY PERFORMANCE

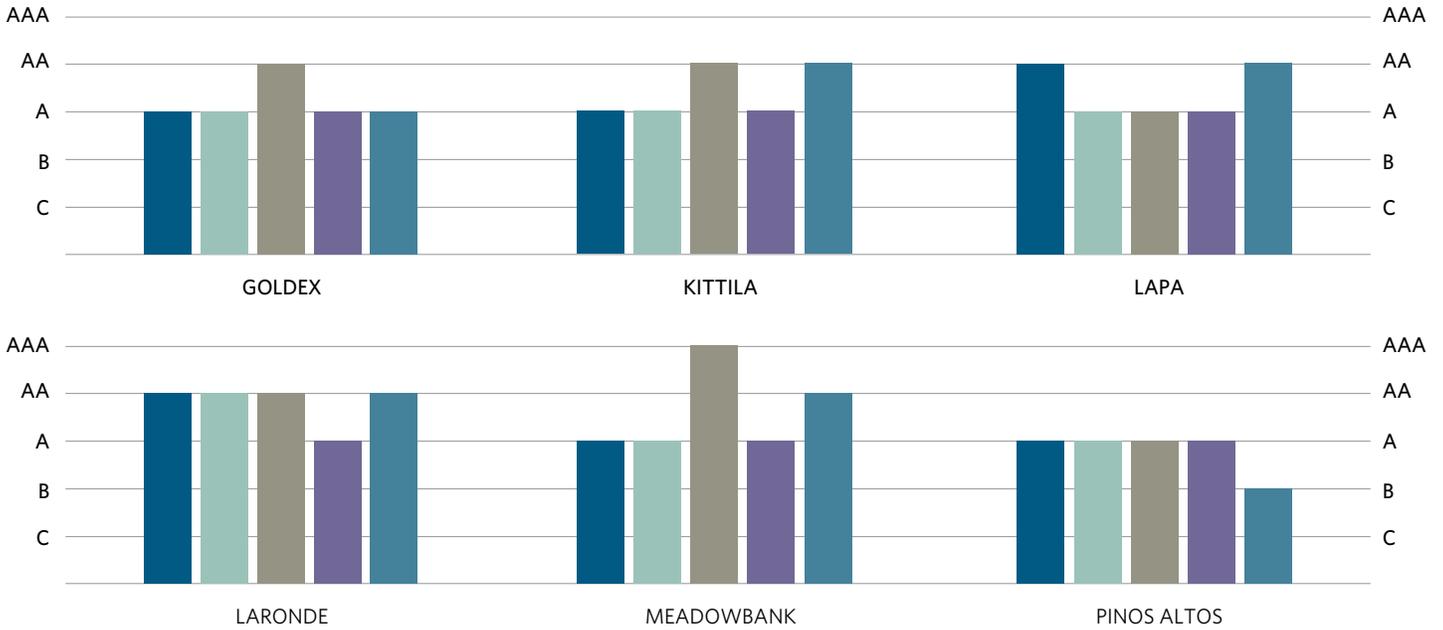
## AGNICO EAGLE MINES LIMITED

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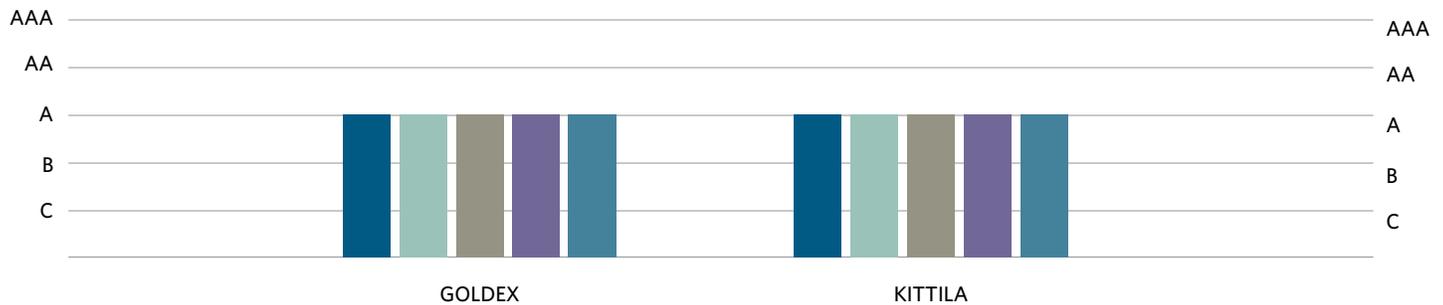
### SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- MONITORING AND REPORTING
- PLANNING, IMPLEMENTATION AND OPERATION
- PERFORMANCE
- TRAINING, BEHAVIOUR AND CULTURE



### TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- TAILINGS MANAGEMENT SYSTEM
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT



# MEASURING COMPANY PERFORMANCE

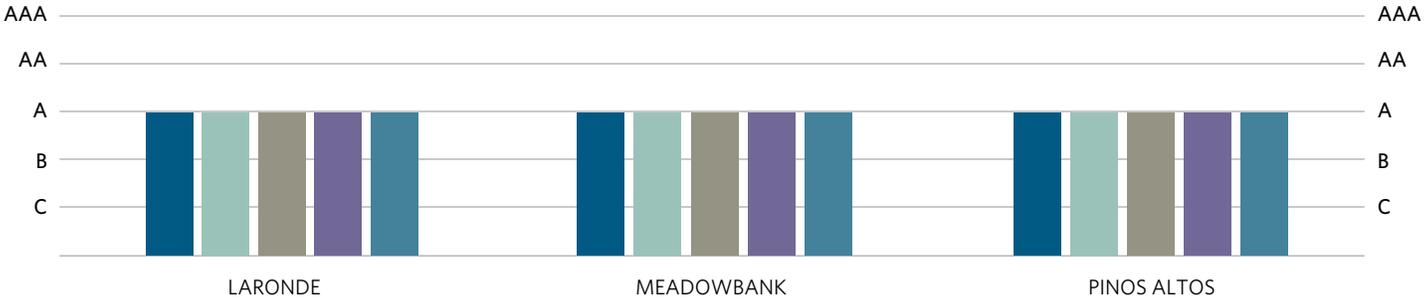
## AGNICO EAGLE MINES LIMITED

Externally Verified



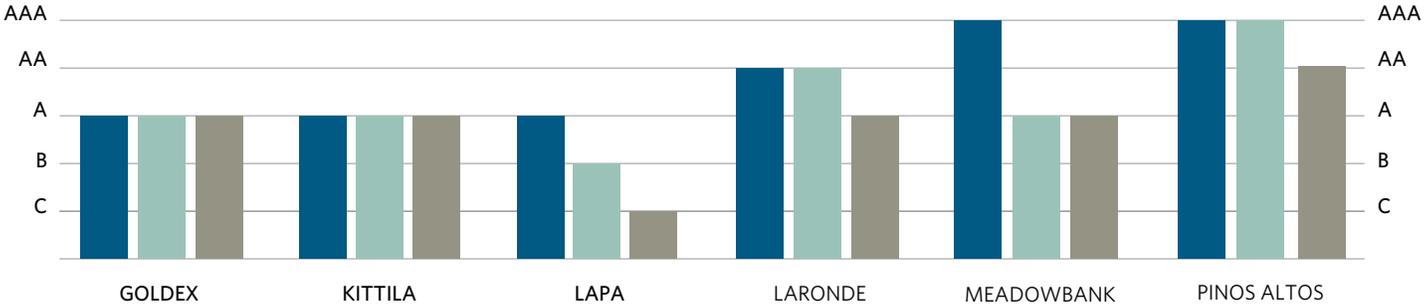
### TAILINGS MANAGEMENT ASSESSMENT (CONTINUED)

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



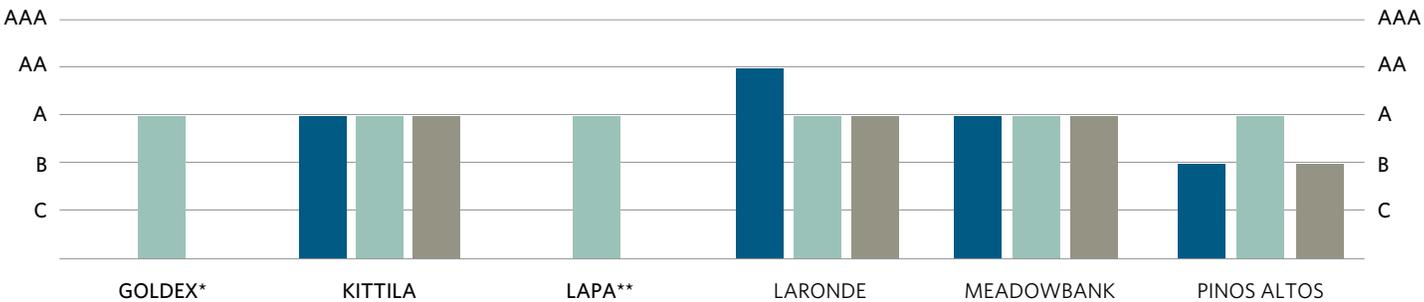
### BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



### ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



\*Goldex's total GHG emissions are under 25 kt CO<sub>2</sub>e and therefore are not required to report performance for indicators 1 and 3 of the energy use and GHG emissions management protocol.

\*\*Lapa's total GHG emissions are under 25 kt CO<sub>2</sub>e and therefore are not required to report performance for indicators 1 and 3 of the energy use and GHG emissions management protocol.





## COMPANY PROFILE - ARCELORMITTAL MINING CANADA G.P.

ArcelorMittal is the largest Canadian supplier of iron ore for steel markets round the world. In 2014, the company produced 24 million tonnes of iron ore concentrate and is active in the mining and primary processing sector. In addition to its mining complex in Mont-Wright, Quebec, ArcelorMittal operates a 420-kilometre railroad, a pellet plant, a private port and railroad shops in Port-Cartier. The company's headquarters is located in Montreal.

As a MAC member, ArcelorMittal is involved in an improvement process through the TSM initiative and is continuously strengthening the application of the different protocols. The company has achieved the ISO 14001:2004 certification for its environmental management systems and the ISO 9001:2008 certification for its quality management systems. ArcelorMittal is also committed to employee health and safety and the environment. Its occupational health and safety system was certified to the OHSAS 18001:2007 standard in June 2011. In addition, ArcelorMittal implemented its Courageous Leadership program, aimed at changing behaviours in the workplace and increasing rigour in all management processes. This initiative contributed to the significant improvement of its lost time injury (LTI) frequency rate, from 4.1 in 2011 to 0.4 in 2014. ArcelorMittal still strives to achieve an LTI frequency rate of 0.

The company is continuously improving its overall energy efficiency (EE). A dedicated EE team carries out projects that reduce both costs and greenhouse gas (GHG) emissions. In the medium term, the solutions developed by ArcelorMittal's research and development team will lead to the use of new energy sources, which will improve efficiency and further reduce GHG emissions. ArcelorMittal will continue to be proactive in reducing its GHG emissions.

The company has been highly involved in its communities of interest for more than 50 years. This involvement continues today in a number of ways through funds allocation, a formal joint committee that includes community representatives, and northern development support. ArcelorMittal has signed an impact and benefit agreement with the Uashat mak Mani-Utenam Inuit community, which is now being jointly implemented.

More than ever, ArcelorMittal is committed to continue improving in its approach to the TSM initiative.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.ARCELORMITTAL.COM](http://WWW.ARCELORMITTAL.COM)**



# MEASURING COMPANY PERFORMANCE ARCELORMITTAL MINING CANADA G.P.

## CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
ARCELORMITTAL MINING CANADA G.P.	☒	☒	☒
MONT-WRIGHT	☒	☒	☒
PORT-CARTIER	☒	☒	☒

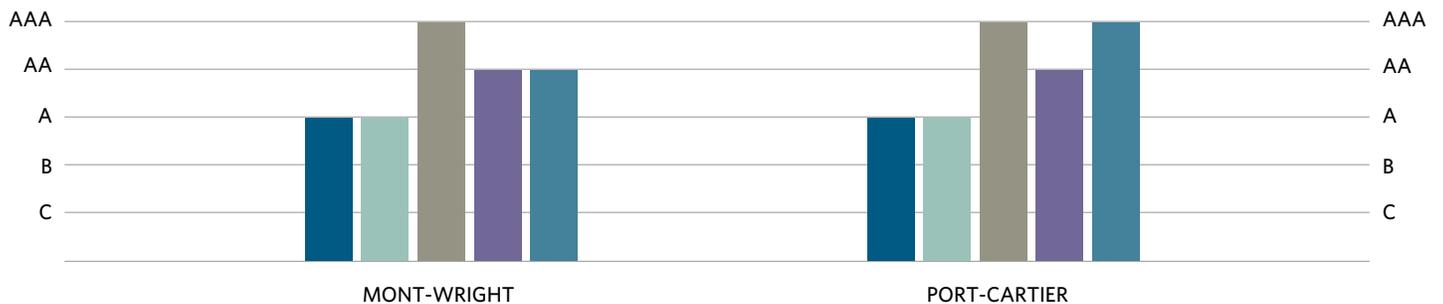
## ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



## SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- TRAINING, BEHAVIOUR AND CULTURE
- PLANNING, IMPLEMENTATION AND OPERATION
- MONITORING AND REPORTING
- PERFORMANCE



Self-assessed results; last external verification: 2013; next external verification: 2016.



# MEASURING COMPANY PERFORMANCE ARCELORMITTAL MINING CANADA G.P.

## TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



## BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



## ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



Self-assessed results; last external verification: 2013; next external verification: 2016.





## COMPANY PROFILE - AVALON RARE METALS INC.

Avalon Rare Metals is a diversified mineral development company focused on rare metal deposits in Canada. The Nechalacho Rare Earth Elements Project at Thor Lake, Northwest Territories, is the most advanced large heavy rare earth elements development project outside of China. Avalon's East Kemptonville Tin-Indium Project in Yarmouth County, Nova Scotia, and Separation Rapids Lithium Minerals Project near Kenora, Ontario, are also currently being developed due to increased global demand for tin and lithium minerals.

Avalon believes a strong, sustainable framework is fundamental to its long-term success. The company has implemented the TSM Guiding Principles in order to meet or exceed industry best practices, and to continuously improve on its social, environmental, and health and safety performance. As Avalon is an exploration and development stage company, its annual TSM self-assessment is voluntary.

Avalon has demonstrated leadership among junior companies in the mineral development sector by producing an annual sustainability report compliant with the Global Reporting Initiative. Avalon reports on its activities to hold itself accountable, drive company performance and demonstrate the benefits of sustainable practices to its stakeholders.

As announced in April 2015, Avalon placed 17<sup>th</sup> in Corporate Knights' *Future 40 Responsible Corporate Leaders in Canada 2015*, ranking second out of 187 eligible small and mid-sized mineral companies.

### Highlights of Avalon's Voluntary 2014 TSM Self-Assessment

During the 2014 reporting period, Avalon finalized its Sustainability Policy, which broadens and clarifies the company's sustainability objectives to encompass health and safety, environment, and communities and people. Published on its website, the policy identifies the ways in which Avalon will achieve these objectives.

### Safety and Health Assessment

Avalon successfully reached its target of zero total recordable injuries (TRI) in 2014. For the first time since 2011, when the company began keeping TRI records, employees, supervised workers and contractors had no lost time or required medical aid for injuries.

Avalon updated its Health, Safety and Environment Management Plan and completed a review of its drillers' health and safety programs.



**COMPANY PROFILE****AVALON RARE METALS INC.**

Avalon advanced the monitoring of leading indicators during the reporting period.

**Energy Use and GHG Emissions Management**

Avalon expanded its corporate tracking systems to include air travel, non-project-related travel and office GHG emissions, as well as tested intensity targets for drilling.

**Aboriginal and Community Outreach**

Avalon signed a participation agreement with the Northwest Territory Métis Nation (NWTMN) in February 2014. The agreement provides the NWTMN with training, employment and business opportunities related to the Nechalacho Project and associated facilities in the Northwest Territories. The agreement also contains measures to mitigate environmental and cultural impacts that may result from the project development.

In May 2014, Avalon signed an access agreement with the East Kemptville site's surface rights holder and began community engagement work. The agreement allows Avalon to conduct approved work programs and includes a rigorous protocol with respect to the environment and health and safety.

Among other university initiatives, Avalon partnered with the University of Saskatchewan's Department of Chemical and Biological Engineering to have a student team study rare earth recycling as a major project. Recycling, as an add-on to mineral processing, can increase the sustainability of hydrometallurgical operations and increase the acceptance of Canadian rare earth products by international customers who value and seek sustainable practices.

**Crisis Management Planning**

In July 2014, large forest fires in the Northwest Territories came close to Avalon's Nechalacho campsite at Thor Lake. To mitigate the risk of fire, which had moved to within 29 kilometres of the camp in mid-July, Avalon implemented additional emergency fire protocols. The company built firebreaks around the camp facilities and core storage area, and installed a sprinkler system to protect the drill core. Avalon welcomed NWT fire crews to the Nechalacho site, and they made use of the company's airstrip and dock facilities.

**Biodiversity Conservation Management**

Avalon developed or updated detailed environmental management plans at the Nechalacho Project, including the Wildlife Habitat and Habitat Protection Plan, and the Wildlife Effects Monitoring Plan.

The company continued to advance the Nechalacho Project towards full construction permits. Approval of the environmental assessment was received from the federal government in November 2013. Avalon obtained water licence and land use permits in April and May 2014, which authorized preliminary site clearing, camp set-up, portal preparation, small-scale power generation and water treatment facilities.

Avalon prepared a Surveillance Network Program to assess future water quality inputs to and outputs from the water treatment system in an effort to monitor and protect downstream water from potential impacts at the Nechalacho Project. Avalon developed and successfully tested a unique water treatment system with water used in its process pilot plant. The test work demonstrates that the company can easily achieve its proposed effluent criteria for rare earth elements.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.AVALONRAREMETALS.COM](http://WWW.AVALONRAREMETALS.COM)**

# MEASURING COMPANY PERFORMANCE

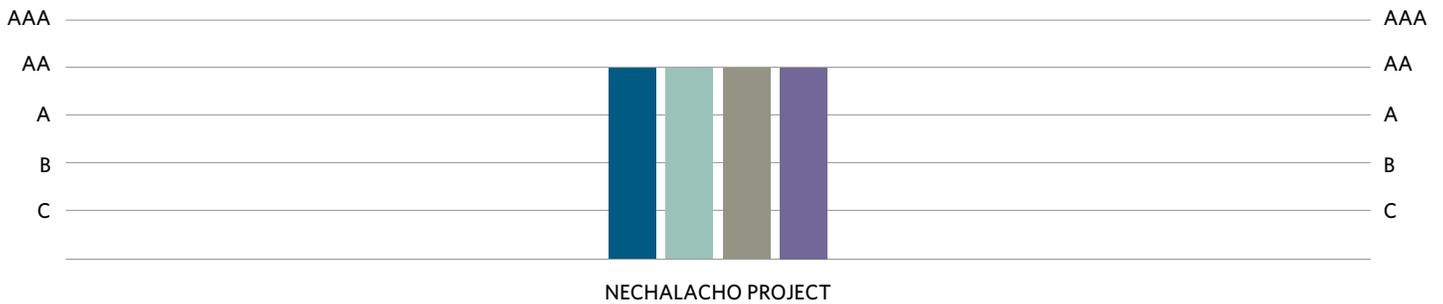
## AVALON RARE METALS INC.

### CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
NECHALACHO PROJECT	✔	✔	✔

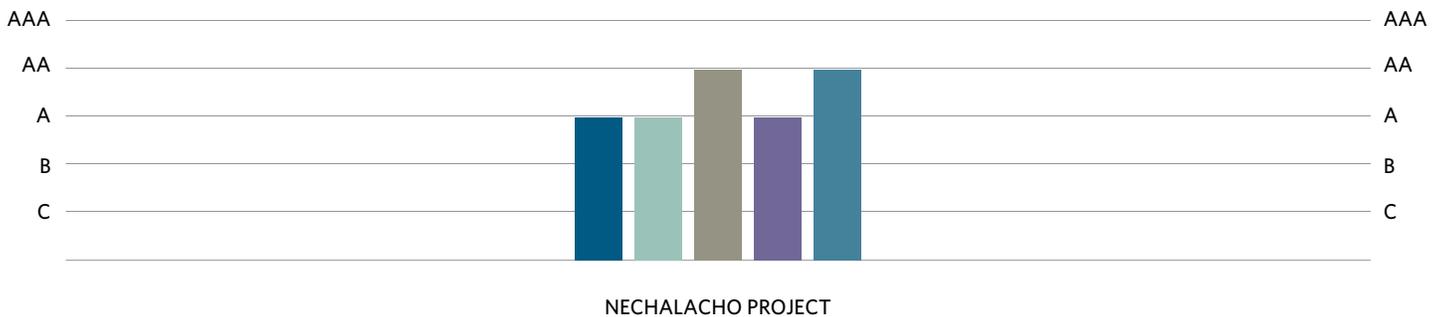
### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



### SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- MONITORING AND REPORTING
- PLANNING, IMPLEMENTATION AND OPERATION
- PERFORMANCE
- TRAINING, BEHAVIOUR AND CULTURE



Self-assessed results; last external verification: N/A; next external verification: N/A.



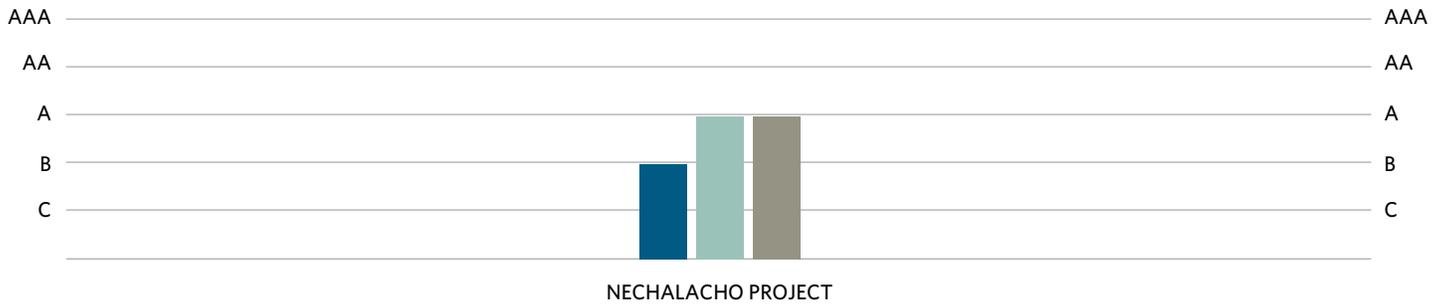
# MEASURING COMPANY PERFORMANCE

## AVALON RARE METALS INC.



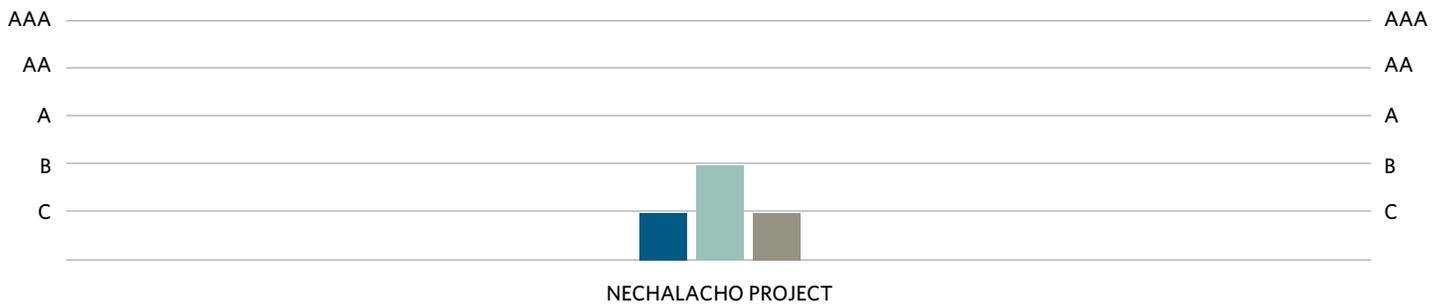
### BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



### ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



Self-assessed results; last external verification: N/A; next external verification: N/A.





## COMPANY PROFILE - BARRICK GOLD CORPORATION

Barrick has mining operations in Argentina, Australia, Canada, Chile, Dominican Republic, Papua New Guinea, Peru, Saudi Arabia, United States and Zambia. More than 75% of the company's gold production comes from the Americas. The company is headquartered in Toronto, Ontario. Barrick aims to be the leading mining company focused on gold by developing and operating high-quality assets through disciplined allocation of human and financial capital and operational excellence.

The founders and first leaders of Barrick Gold Corporation were committed to a culture of partnership. This culture continues today, and the values underlying it include trust, transparency, shared responsibility and accountability, and a strong sense of ownership.

The Hemlo mining operation is one of Barrick's North American operations. It is located approximately 46 kilometres east of Marathon, Ontario, and has produced gold continuously since 1985. The operation includes an underground mine and open-pit mine complex with a shared processing facility. Recently, the Hemlo operation entered a new phase of its productive life with the purchase of adjacent lands, increasing the site's mineable reserves. The site's mine life is now extended until 2019 with the possibility of additional expansions.

Given the expected closure of the site, Hemlo's original TSM goal was to achieve and maintain a minimum ranking of Level A within each protocol. The site's extended mine life provides new opportunities for further enhancements to Hemlo's practices and operating standards. As such, the site is now seeking higher rankings through continued diligence and the application of TSM, coupled with other international practices and standards.

Hemlo's commitment to improve is further demonstrated by the site's continued certification by independent third-party auditors under the International Cyanide Management Code and ISO 14001 for environmental management systems. These certifications, coupled with TSM, reinforce Barrick's commitment to the environment and continued sustainability.

As part of this commitment to sustainability, Hemlo continues to expand its external outreach and partnerships. The site was the first in Canada to receive the Mining Essentials and Environmental Monitoring training program for Aboriginal people. This program enabled 10 members of the Pic River First Nation and Pic Moberg First Nation to receive training. Hemlo continues to work on several initiatives with both First Nation communities and other identified communities of interest.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.BARRICK.COM](http://WWW.BARRICK.COM)**



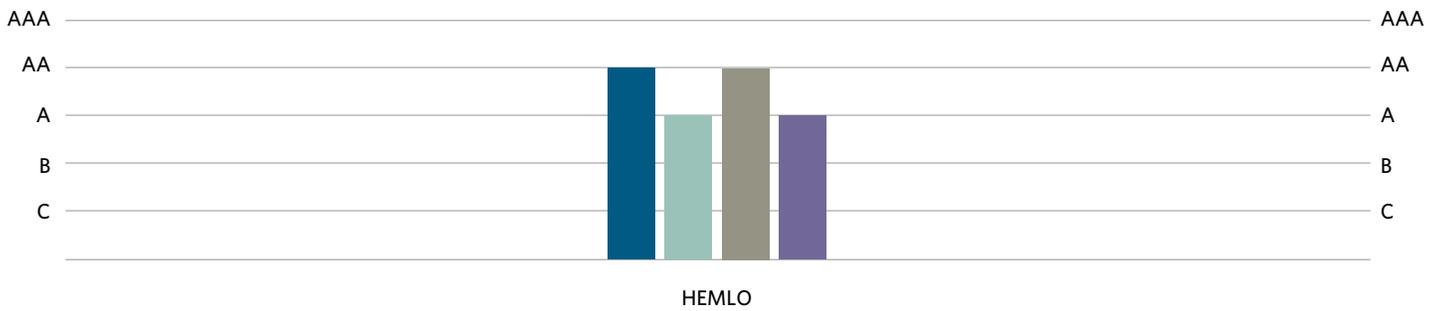
# MEASURING COMPANY PERFORMANCE BARRICK GOLD CORPORATION

## CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
BARRICK GOLD CORPORATION	✓	✓	✓
HEMLO	✓	✓	✓

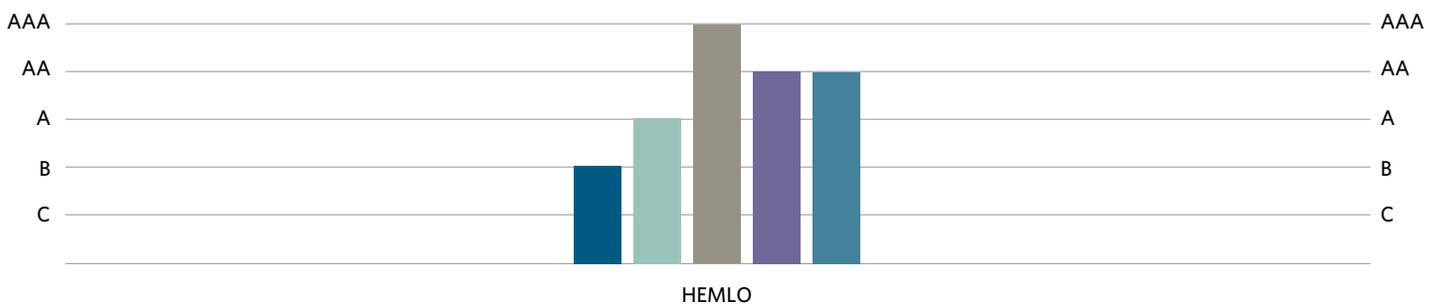
## ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



## SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- MONITORING AND REPORTING
- PLANNING, IMPLEMENTATION AND OPERATION
- PERFORMANCE
- TRAINING, BEHAVIOUR AND CULTURE



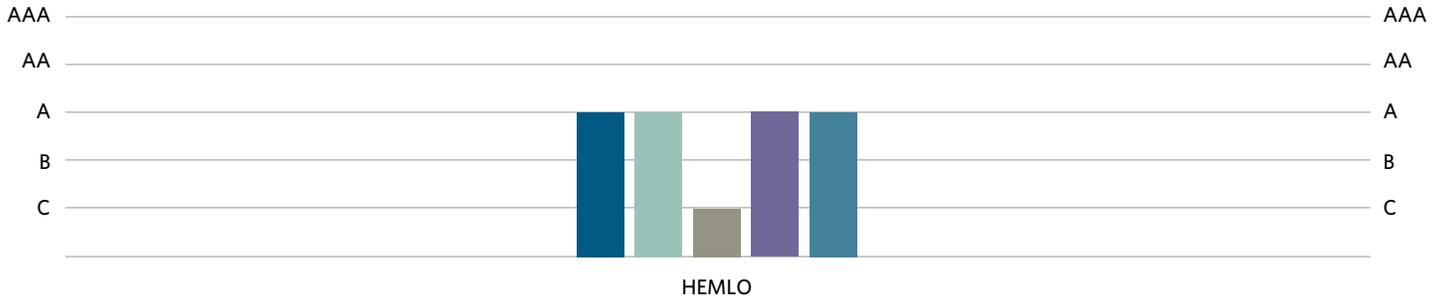
Self-assessed results; last external verification: 2013; next external verification: 2016.



# MEASURING COMPANY PERFORMANCE BARRICK GOLD CORPORATION

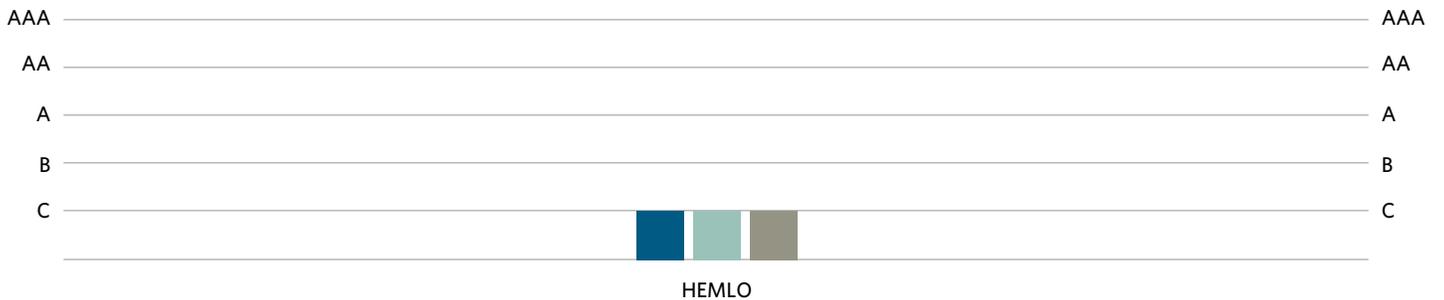
## TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- TAILINGS MANAGEMENT SYSTEM
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT



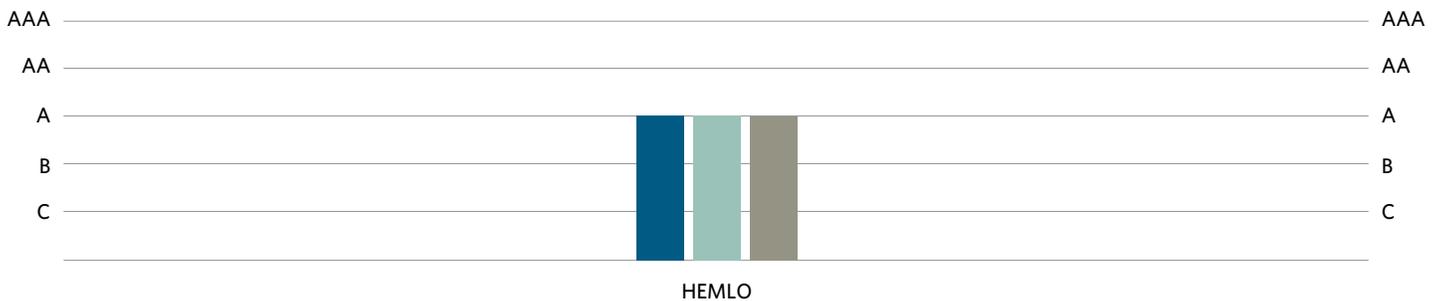
## BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



## ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS



Self-assessed results; last external verification: 2013; next external verification: 2016.





## COMPANY PROFILE - CAMECO CORPORATION

Cameco Corporation is one of the world's largest uranium producers. The company's competitive position is based on controlling ownership of the world's largest high-grade reserves located in the Athabasca Basin of northern Saskatchewan. Three of Cameco's leading uranium production centres – McArthur River, Key Lake and Rabbit Lake – are located in this geological setting. Key Lake, the most southerly of the three operations, is 570 kilometres by air north of Saskatoon, the location of Cameco's head office.

Cameco's McArthur River mining operation has been the world's leading primary producer of uranium since the mine began commercial production in 2000. It has produced nearly 270 million pounds of uranium since production began. McArthur River's remaining reserves allow Cameco to project a mine life until at least 2033, based on ore reserves grading nearly 15% or about 100 times the world average for uranium mines. The mine has achieved its historic average production of 18 million pounds by mining just 150 to 200 tonnes of ore each day.

The Key Lake milling operation works in tandem with McArthur River. Ore slurry from McArthur River is transported 80 kilometres south to the Key Lake mill for processing into uranium oxide. Key Lake started operations in 1983 to initially process ore from two open-pit deposits. The mill and its engineered tailings, along with water treatment facilities, have been upgraded over the years. McArthur River and Key Lake both have federal regulatory approval to produce up to 25 million pounds of uranium each year.

The Rabbit Lake operation first produced uranium in 1975 and has produced uranium ore from four historic open pits. The operation currently mines ore from Eagle Point, an underground mine located approximately 16 kilometres from the mill. Rabbit Lake currently deposits tailings into an engineered in-pit facility that was the first orebody to be mined at Rabbit Lake. The mill's water treatment facilities have been upgraded in recent years to meet additional regulatory requirements.

All Cameco operations in northern Saskatchewan have ISO 14001 certification for their environmental management systems. Over the years, Cameco has negotiated numerous agreements with a number of Aboriginal communities in the Athabasca Basin, most recently signing collaboration agreements with two communities closer to McArthur River and Key Lake. These agreements have both business and social development aspects.



**COMPANY PROFILE****CAMECO CORPORATION**

The following is a summary of TSM results for Cameco Corporation in 2014. These results have been externally verified by a MAC-certified verification service provider.

**Crisis Management Planning**

Cameco's crisis management plans meet all TSM performance requirements.

**Energy Use and GHG Emissions Management**

Cameco is a relatively small energy user and emitter of greenhouse gases. As such, the company has focused past efforts on achieving a Level A performance in other protocols that pose a higher risk to Cameco operations. Therefore, results for the energy and GHG key performance indicators remain relatively low. In the coming year, Cameco will be determining what is required to achieve a Level A for recently updated protocol.

**Tailings Management**

Cameco has only tailings facilities at its Key Lake and Rabbit Lake operations. Both of these facilities achieved a Level A for all performance indicators.

**Aboriginal and Community Outreach**

Since all of Cameco's Canadian mining operations are located in relatively close proximity to one another in northern Saskatchewan, the majority of activities related to the Aboriginal and community outreach protocol are centrally managed from Cameco's corporate office. Therefore, all operations received a Level A for the effective COI engagement and dialogue indicator and a Level AAA for the remaining three indicators.

**Biodiversity Conservation Management**

Cameco's operations all scored a Level A or higher for the biodiversity conservation management performance indicators.

**Safety and Health**

Cameco has strong safety and health management systems and scored a Level AAA in the training, behaviour and culture indicator and a Level AA for the remaining four indicators.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.CAMECO.COM](http://WWW.CAMECO.COM)**

# MEASURING COMPANY PERFORMANCE

## CAMECO CORPORATION



### CRISIS MANAGEMENT PLANNING ASSESSMENT

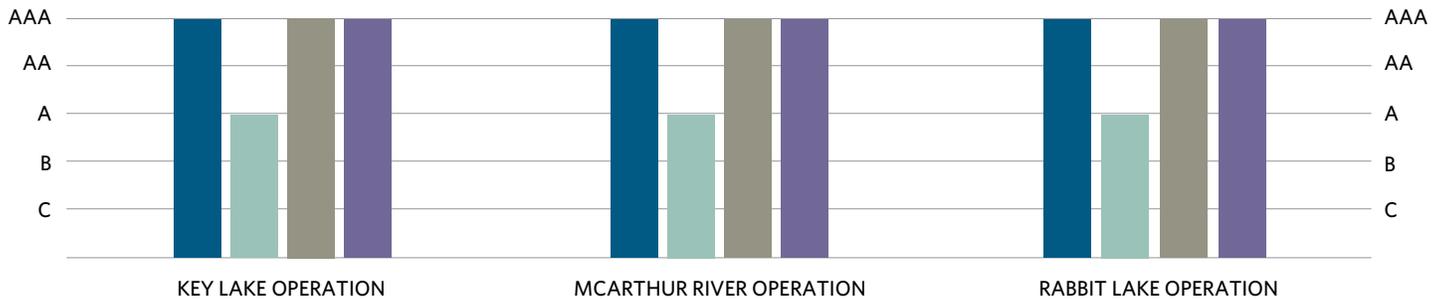
Externally Verified

FACILITY	PREPAREDNESS	REVIEW	TRAINING
CAMECO CORPORATION	✓	✓	✓
KEY LAKE OPERATION	✓	✓	✓
MCARTHUR RIVER OPERATION	✓	✓	✓
RABBIT LAKE OPERATION	✓	✓	✓



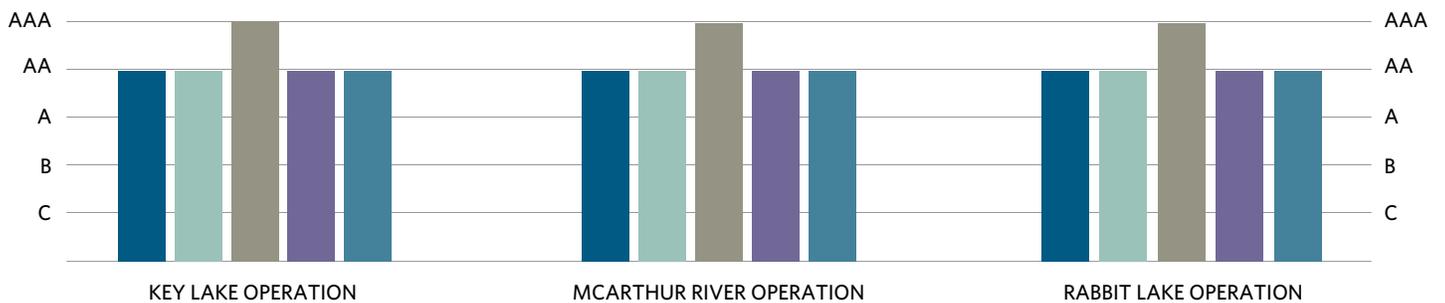
### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



### SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- MONITORING AND REPORTING
- PLANNING, IMPLEMENTATION AND OPERATION
- PERFORMANCE
- TRAINING, BEHAVIOUR AND CULTURE



# MEASURING COMPANY PERFORMANCE CAMECO CORPORATION

Externally Verified

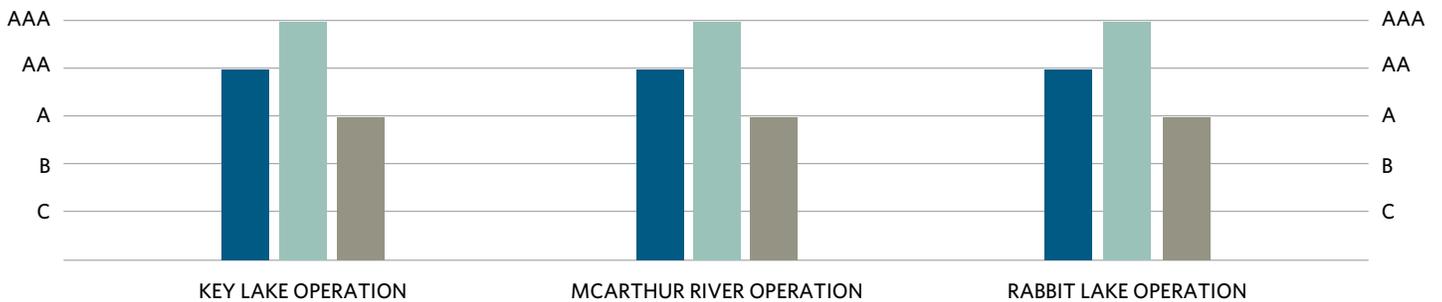
## TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



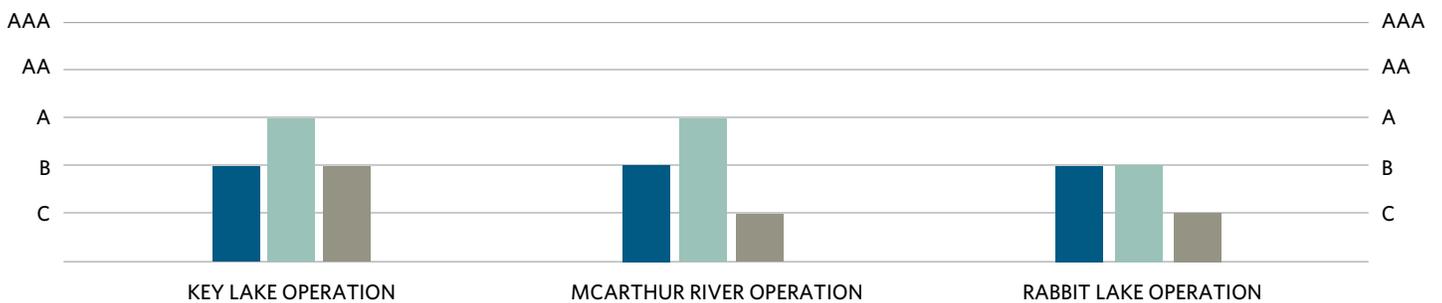
## BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



## ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



# DE BEERS

GROUP OF COMPANIES

## COMPANY PROFILE - DE BEERS CANADA INC.

De Beers Canada's Snap Lake Mine, the country's only fully underground diamond mine, is located approximately 220 kilometres northeast of Yellowknife. The company's Victor Mine, Ontario's first and only diamond mine, is located 90 kilometres west of the Attawapiskat First Nation in northeastern Ontario. De Beers Canada is also the majority partner and operator of the Gahcho Kué project in the Northwest Territories, which is a new mine currently under construction, located 280 kilometres northeast of Yellowknife.

De Beers Canada's operations are committed to sustainable development, and both the Snap Lake and the Victor mines have signed impact benefit agreements with eight First Nations communities. Both mines maintain safety, health and environmental management systems that have been certified to OHSAS 18001 and ISO 14001 standards.

De Beers Canada is a member of the Canadian Diamond Code of Conduct and Jewellers Vigilance Canada. As part of the larger De Beers Group of Companies, De Beers Canada is also a supporter, participant or signatory of the Global Reporting Initiative, the Responsible Jewellery Council standards, the United Nations Global Compact, the Extractive Industries Transparency Initiative and the Kimberley Process.

The following is a summary of TSM results for De Beers Canada in 2014.

### Crisis Management Planning

Crisis management plans for the corporate office and both mines conform to all TSM performance requirements.

### Energy Use and GHG Emissions Management

The Victor Mine established a mature energy management system and achieved a Level AA for two out of three indicators. The energy use and GHG reporting system was assessed at Level A.

The Snap Lake Mine's energy reporting system was also assessed at Level A with the other two indicators being assessed at Level B. Vacancies in the engineering and maintenance department and ongoing changes to the mine's power generation system during the past two years have limited progress.



**COMPANY PROFILE****DE BEERS CANADA INC.****Tailings Management**

Both mines maintained either a Level AA or Level AAA for all of the tailings management performance indicators except for Snap Lake, which was assessed at Level A for its OMS manual. Both mines participated in the De Beers Group's annual tailings management assurance and review program. The Victor Mine also underwent a third-party audit of selected elements of its tailings management program.

**Aboriginal and Community Outreach**

Both mines maintained either a Level AA or Level AAA for all of the Aboriginal and community outreach performance indicators.

**Biodiversity Conservation Management**

Both mines improved and were assessed at Level A or above.

The Victor Mine has extensive environmental monitoring programs, which are already in place for various permits, environmental assessment follow-up programs and research initiatives. Improvements are currently underway to increase communication with communities of interest and to make information publicly available about the mine's biodiversity conservation performance.

The Snap Lake Mine also established comprehensive environmental monitoring programs as required by various licences, permits and environmental assessment follow-up programs. Improvements are currently focused on linking these programs to a Biodiversity Action Plan framework and documenting annual target setting and reporting systems.

**Safety and Health**

The safety and health management systems at both mines are certified to OHSAS 18001, and both were self-assessed at Level AAA, with the exception of one indicator at each mine that was assessed at Level AA.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.CANADA.DEBERSGROUP.COM](http://WWW.CANADA.DEBERSGROUP.COM)**



# MEASURING COMPANY PERFORMANCE

DE BEERS CANADA INC.

## CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
DE BEERS CANADA INC.	✓	✓	✓
SNAP LAKE MINE	✓	✓	✓
VICTOR MINE	✓	✓	✓

## ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



## SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- MONITORING AND REPORTING
- PLANNING, IMPLEMENTATION AND OPERATION
- PERFORMANCE
- TRAINING, BEHAVIOUR AND CULTURE



Self-assessed results; last external verification: 2013; next external verification: 2016.



# MEASURING COMPANY PERFORMANCE DE BEERS CANADA INC.

## TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- TAILINGS MANAGEMENT SYSTEM
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT



## BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



## ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



Self-assessed results; last external verification: 2013; next external verification: 2016.





## COMPANY PROFILE - DOMINION DIAMOND CORPORATION

Dominion Diamond Corporation is a Canadian diamond mining company. It has ownership interests in two major producing diamond mines situated approximately 200 kilometres south of the Arctic Circle in Canada's Northwest Territories. Dominion Diamond operates the Ekati Diamond Mine in which it owns an 88.9% controlling interest and has a 65.3% interest in the surrounding areas, which contain additional reserves and resources. It also owns 40% of the Diavik Diamond Mine. Dominion Diamond supplies rough diamonds to the global market through its sorting and selling operations in Canada, Belgium and India, and is the world's third-largest producer of rough diamonds by value.

The Ekati Diamond Mine site is located roughly 300 kilometres northeast of Yellowknife and is accessed by air and by a 400-kilometre ice road in the winter. Diavik Diamond Mines Inc., a subsidiary of Rio Tinto plc, operates the Diavik Diamond Mine. TSM results for Diavik are provided by Rio Tinto and can be found on page 121 of this report.

At Dominion Diamond, performance means delivering sustainable growth by investing in the future. This involves supporting excellence in leadership and, most of all, delivering on the commitment of zero harm: to the company's own people, through consistent and risk-based work practices; to its host communities, through communication and the inclusion of their opinions and concerns in mine plans and mine-life extension projects; and to the environment, through innovative, adaptive management and intensive monitoring of the mine's impact.

Dominion Diamond is pleased with the Ekati mine's performance and is dedicated to building on its legacy: promoting the safety, development and well-being of all its employees, and upholding its commitment to the land, the North and all who live there. The company will continue to work closely with its impact benefit agreement (IBA) groups, maintaining the focus on the empowerment and sustainability of its northern communities. With such a solid foundation, Dominion Diamond will concentrate on making improvements and enhancements.

Dominion Diamond uses TSM reporting as part of a suite of tools that drive continuous improvement across its operations. The company conducts extensive internal and external monitoring and auditing of all sustainable development practices, and the TSM initiative draws many of these processes into a forum for wider reporting across Canada. This extra level of self-regulation adds value because processes are reviewed from a different reporting perspective than would be the case under other HSEC (health, safety, environment and community) and ISO audits.



**COMPANY PROFILE****DOMINION DIAMOND CORPORATION**

Biodiversity conservation management and Aboriginal and community outreach are two areas where the Ekati mine has consistently scored high, and that trend continued in 2014. The company met regularly with stakeholders to share information about its operations and future plans and to hear feedback on decisions that may affect them. The Ekati mine created community development plans that facilitate a sharp focus on where its efforts will make the most difference in communities. Even though the company inherited the IBAs, which are in place until the end of mine life, it continues to work with its IBA partners to explore additional community development initiatives that go above and beyond the original agreements.

Dominion Diamond's considerable efforts continue in stewardship of the environment. The results achieved in 2014 are evidence that the company is on track in terms of understanding and conserving biodiversity, effectively disposing of processed kimberlite, and managing associated water quality.

In June 2014, the Ekati Mine Rescue Team competed against four other mines at the Territorial Mine Rescue Competition in Yellowknife. The Ekati team captured the overall awards for surface and underground mine rescue, winning eight of the possible 13 categories.

Dominion Diamond's results illustrate that it is focused on the North and is committed to fulfilling its vision: strengthening and deepening its relationships with its community stakeholders and extending mine life. With mine-life extension on the horizon, the company is striving to enhance the Ekati mine's socioeconomic and environmental records where sustainable resource development and community growth are paramount. By incorporating traditional knowledge and feedback from its community partners, Dominion Diamond will become better at what it does. The company genuinely cares about its people and wants to make investments that have long-lasting impacts that benefit all northerners.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.DDCORP.CA](http://WWW.DDCORP.CA)**



# MEASURING COMPANY PERFORMANCE DOMINION DIAMOND CORPORATION

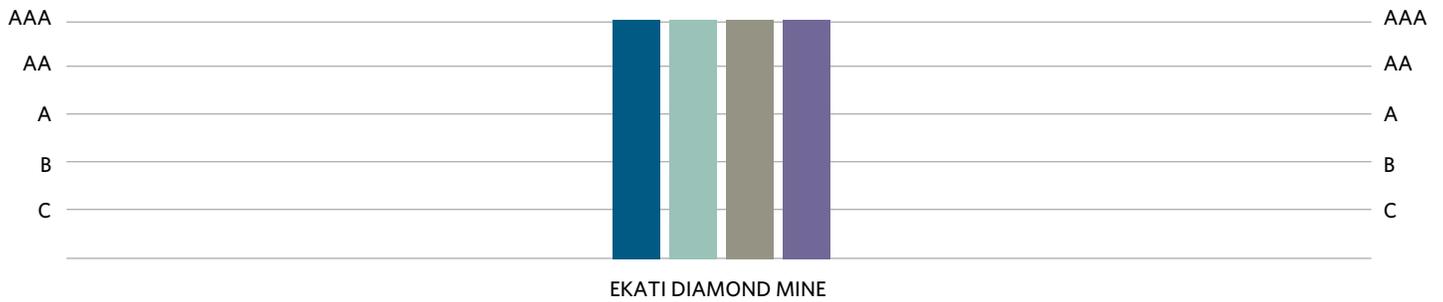
## CRISIS MANAGEMENT PLANNING ASSESSMENT

Externally  
Verified

FACILITY	PREPAREDNESS	REVIEW	TRAINING
DOMINION DIAMOND	☒	☒	☒
EKATI DIAMOND MINE	☒	☒	☑

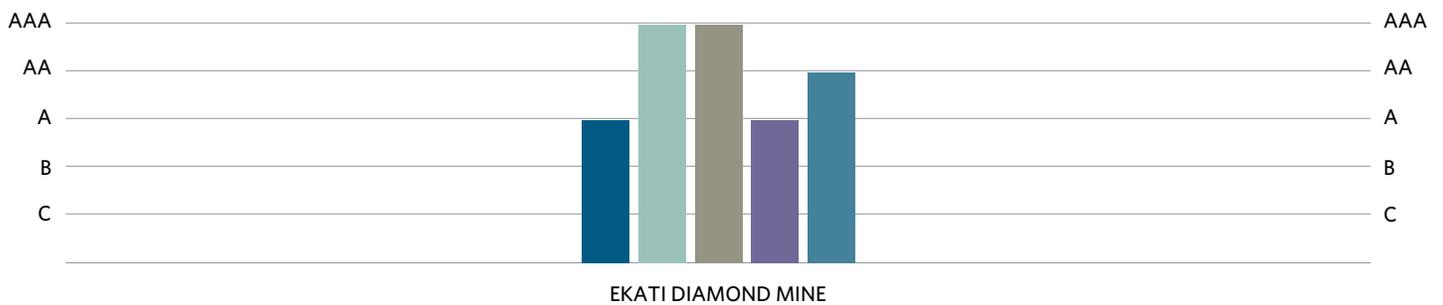
## ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



## SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- MONITORING AND REPORTING
- PLANNING, IMPLEMENTATION AND OPERATION
- PERFORMANCE
- TRAINING, BEHAVIOUR AND CULTURE



# MEASURING COMPANY PERFORMANCE

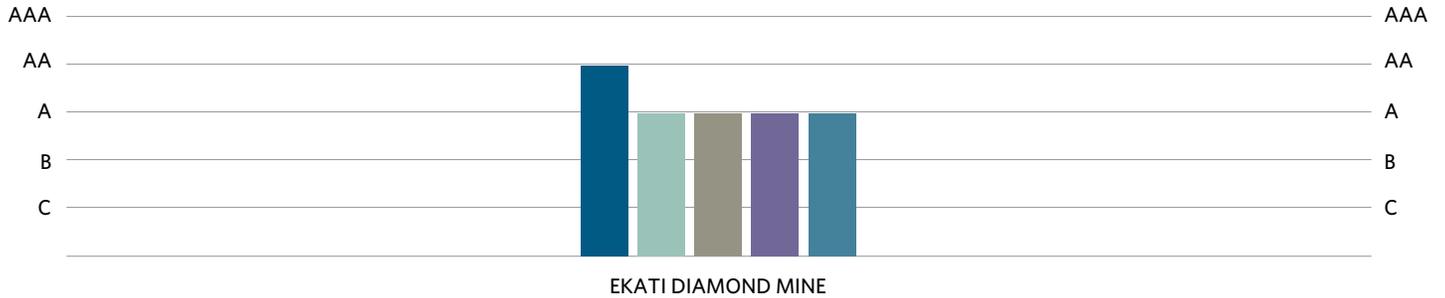
## DOMINION DIAMOND CORPORATION

Externally Verified



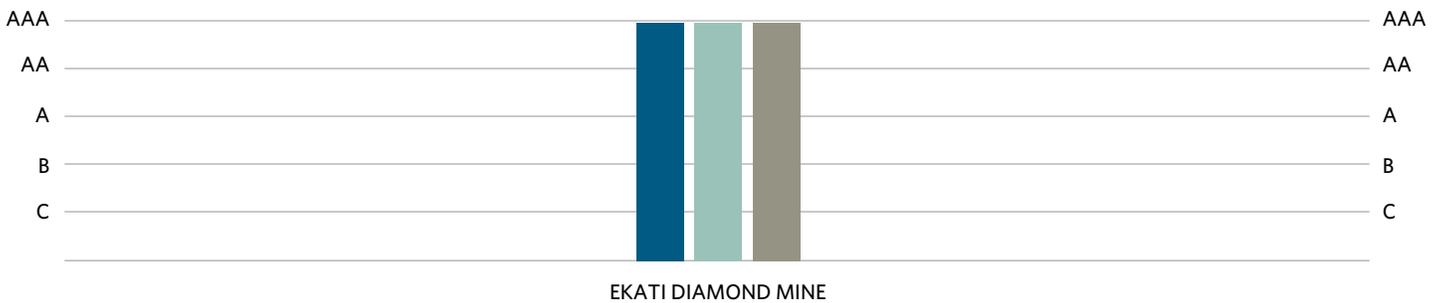
### TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



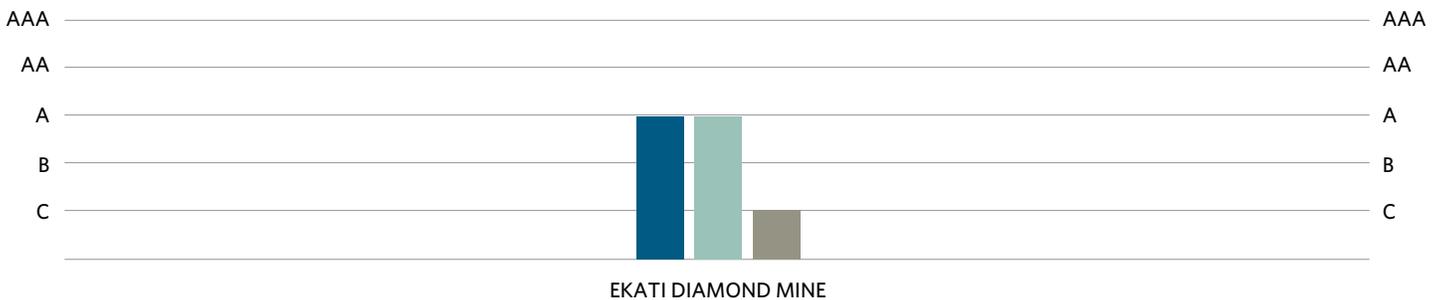
### BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



### ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS





## COMPANY PROFILE - FIRST QUANTUM MINERALS LTD.

First Quantum Minerals Ltd. is a well-established and rapidly growing mining and metals company engaged in mineral exploration, development and mining. The company produces copper, gold, nickel, platinum, palladium, zinc and sulphuric acid. All of First Quantum's Canadian facilities, which are closed mines, participate in TSM. In addition, the company's development project in Panama and its operations in Turkey, Spain and Finland voluntarily participate in TSM and have reported on their progress.

In 2015, all participating facilities underwent third-party verification, which confirmed their performance and demonstrated continuous improvements. When combined, those facilities achieved a conformance rate of 85% at a Level A or better across all TSM indicators. The third-party verification confirmed that all of the facilities achieved a Level A or higher across all of the indicators for the tailings management and the Aboriginal and community outreach protocols. The company's development project in Panama and its operating mines in Turkey, Spain and Finland each met the requirements for a Level A on all indicators of the biodiversity conservation management protocol. The facilities' crisis management systems met all the requirements of this TSM protocol, having updated their plans and conducted crisis simulations in 2014. A crisis simulation was, however, not completed at the corporate level in 2014.

While First Quantum is pleased with the overall performance achieved this year, it is committed to continuous improvement and has put measures in place to continue pursuing excellence. The company aims to improve its performance in the area of setting targets for energy use and GHG emissions management and in biodiversity conservation management at its closed properties in Canada.

This year, based on its 2014 performance, First Quantum's Çayeli mine qualifies for a TSM Leadership Award for achieving a Level A or higher across all indicators for each of TSM's six protocols.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.FIRST-QUANTUM.COM](http://WWW.FIRST-QUANTUM.COM)**



# MEASURING COMPANY PERFORMANCE

## FIRST QUANTUM MINERALS LTD.



### CRISIS MANAGEMENT PLANNING ASSESSMENT

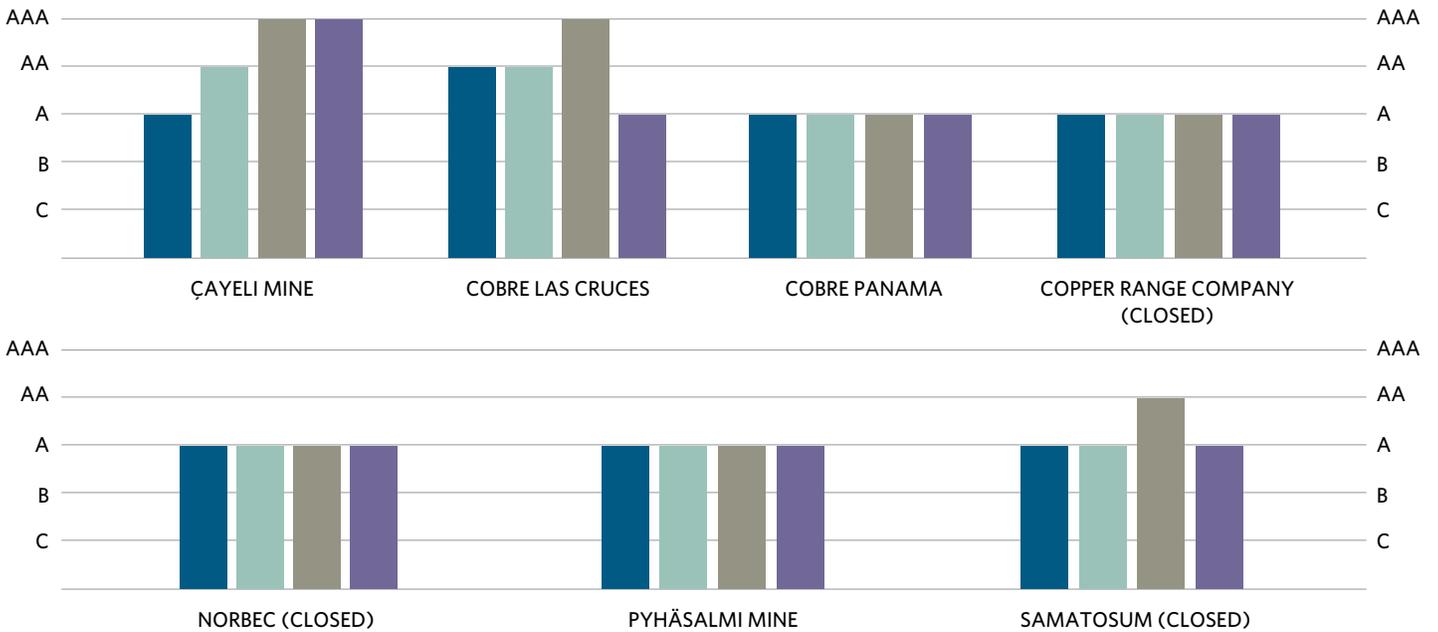
Externally Verified

FACILITY	PREPAREDNESS	REVIEW	TRAINING
FIRST QUANTUM MINERALS	✓	✓	✗
ÇAYELI MINE	✓	✓	✓
COBRE LAS CRUCES	✓	✓	✓
COBRE PANAMA	✓	✓	✓
COPPER RANGE COMPANY (CLOSED)	✓	✓	✓
NORBEC (CLOSED)	✓	✓	✓
PYHÄSALMI MINE	✓	✓	✓
SAMATOSUM (CLOSED)	✓	✓	✓
STURGEON LAKE (CLOSED)	✓	✓	✓
TROILUS (CLOSED)	✓	✓	✓
WINSTON LAKE (CLOSED)	✓	✓	✓



### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- COI RESPONSE MECHANISM
- REPORTING



# MEASURING COMPANY PERFORMANCE

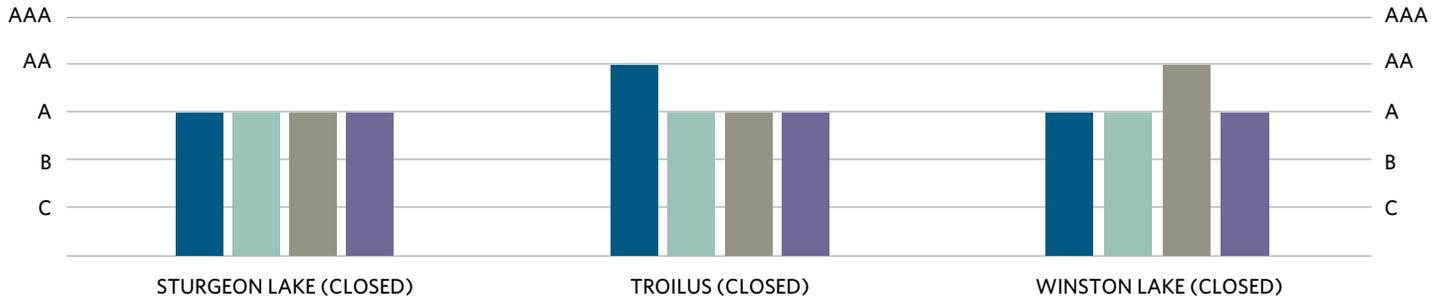
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Externally Verified



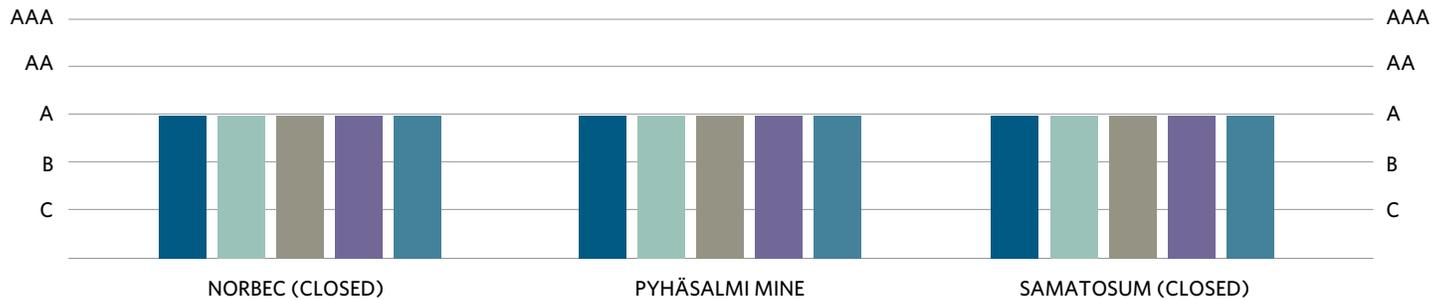
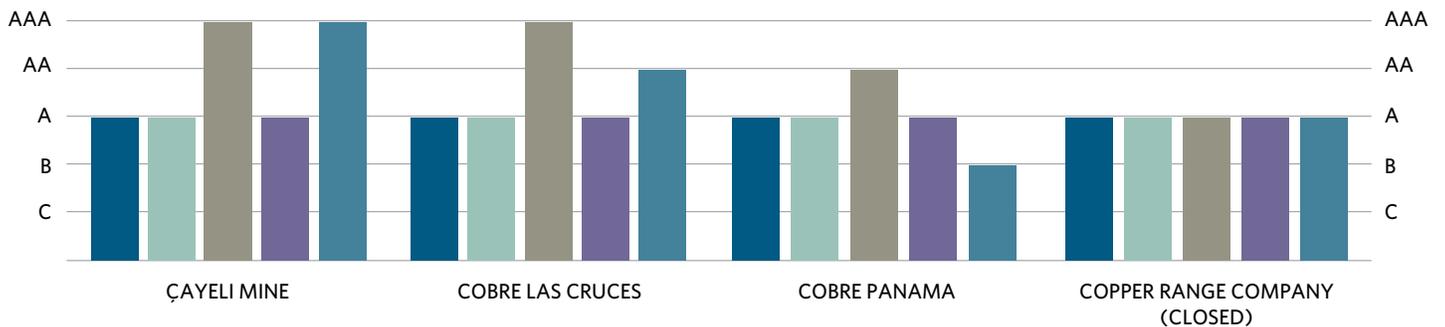
### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT (CONTINUED)

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- COI RESPONSE MECHANISM
- REPORTING



### SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- PLANNING, IMPLEMENTATION AND OPERATION
- TRAINING, BEHAVIOUR AND CULTURE
- MONITORING AND REPORTING
- PERFORMANCE



# MEASURING COMPANY PERFORMANCE

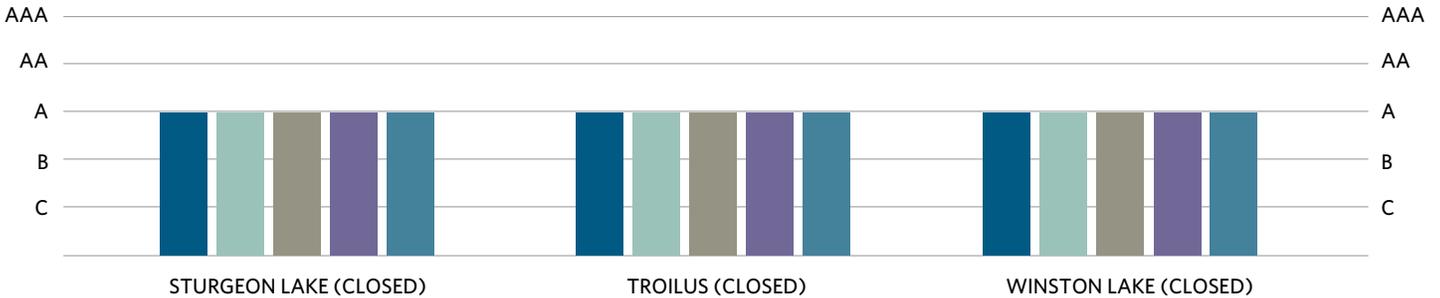
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Externally Verified



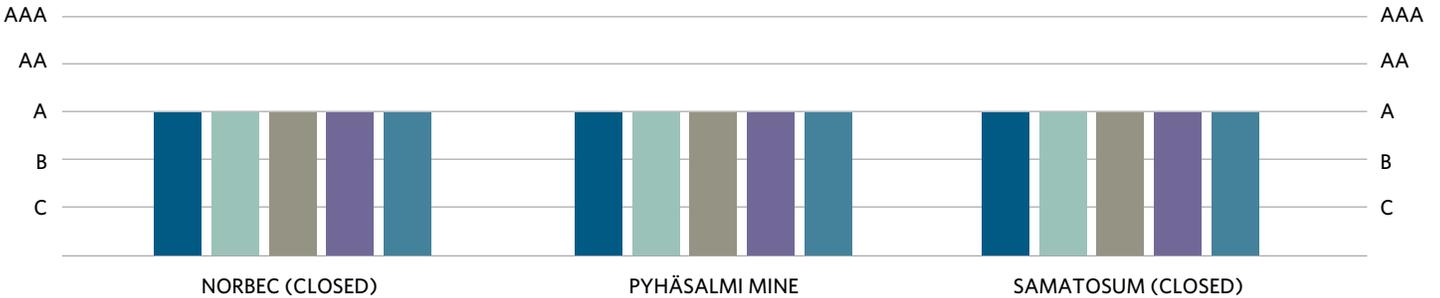
### SAFETY AND HEALTH ASSESSMENT (CONTINUED)

- POLICY, COMMITMENT AND ACCOUNTABILITY
- PLANNING, IMPLEMENTATION AND OPERATION
- TRAINING, BEHAVIOUR AND CULTURE
- MONITORING AND REPORTING
- PERFORMANCE



### TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



# MEASURING COMPANY PERFORMANCE

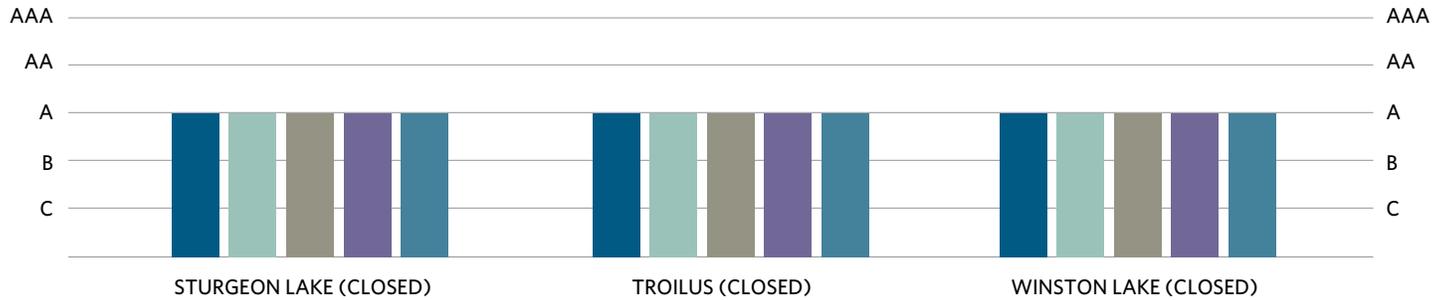
## FIRST QUANTUM MINERALS LTD.

Externally Verified



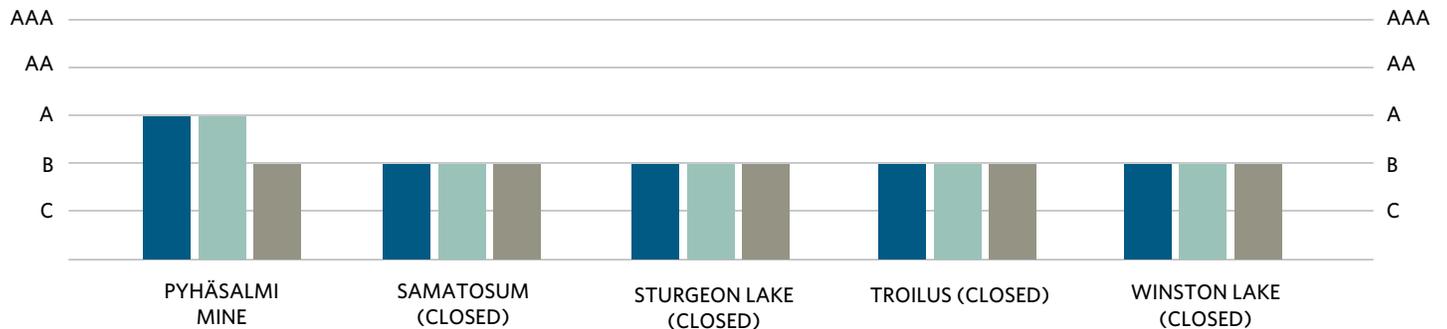
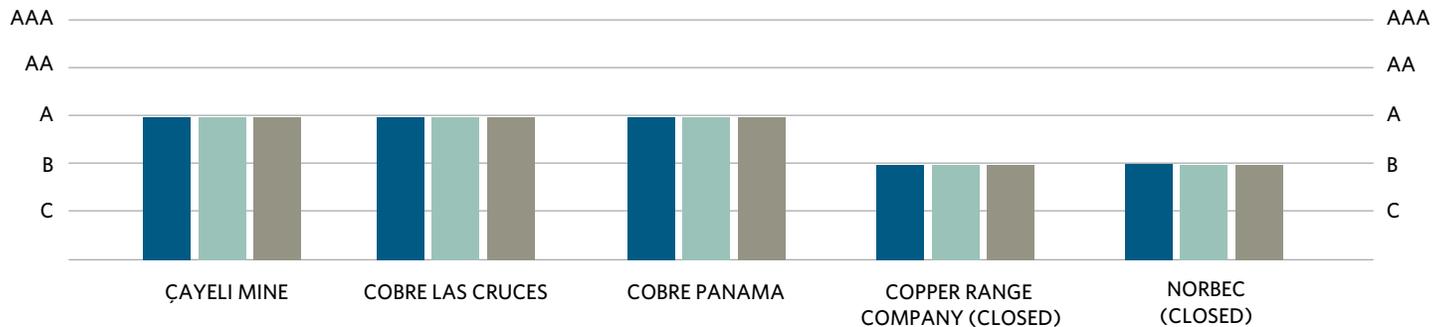
### TAILINGS MANAGEMENT ASSESSMENT (CONTINUED)

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



### BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



# MEASURING COMPANY PERFORMANCE

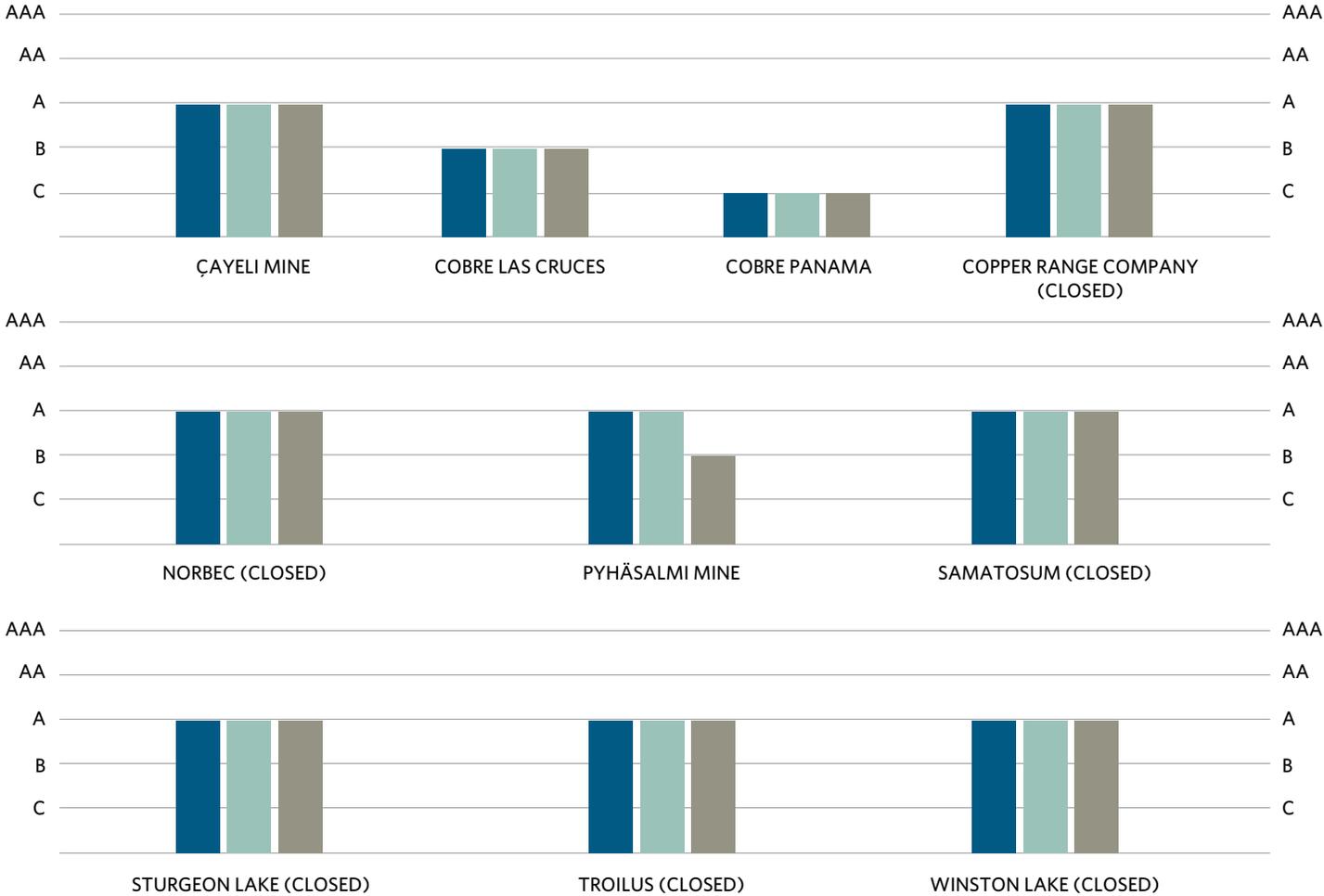
## FIRST QUANTUM MINERALS LTD.



### ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

Externally Verified

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



# GLENCORE

## COMPANY PROFILE - GLENCORE

Glencore is one of the world's largest global diversified natural resource companies and a major producer and marketer of more than 90 commodities. The company's operations comprise more than 150 mining and metallurgical sites, oil production assets and agricultural facilities. Glencore's Canadian operations are guided by the TSM initiative and have participated since 2004.

The following Glencore facilities have implemented the TSM initiative:

- Horne Smelter, Rouyn-Noranda, Quebec
- Canadian Copper Refinery (CCR), East Montreal, Quebec
- Sudbury Integrated Nickel Operations (INO), Sudbury, Ontario
- Raglan Mine, Nunavik region, Quebec
- Brunswick Smelter, Bathurst, New Brunswick
- Noranda Income Fund, CEZ Refinery (25% interest), Valleyfield, Quebec
- Kidd Operations, Timmins, Ontario

Sustainability lies at the foundation of Glencore's business strategy and activities. Sustainability requires meaningful engagement with communities of interest. At the same time, it requires maintaining the highest regard for environmental stewardship, social responsibility, corporate governance and transparent reporting, while delivering superior shareholder returns.

### NICKEL OPERATIONS

Glencore's nickel assets include mines and processing facilities in Canada, Australia and New Caledonia, and a refinery in Norway. The company also holds joint ownership in a growth project in Tanzania, and has an asset in care and maintenance in the Dominican Republic. Its Canadian mining operations and processing facilities are located in Ontario and Quebec. Glencore is the world's fourth-largest nickel producer, with annual managed production of 148,000 tonnes of nickel. It produces some of the world's purest nickel, ferronickel and cobalt, and is one of the largest recyclers and processors of nickel and cobalt-bearing materials.



## COMPANY PROFILE **GLENCORE**

Glencore nickel operations had their 2013 TSM performance verified in 2014. Consistent with the new reporting framework for TSM, self-assessments were conducted in 2015 for those protocols that were not previously verified at a Level A or AA rating for all the indicators.

In 2014, Sudbury INO was awarded the TSM Leadership Award, the highest TSM Performance Award, in recognition of its outstanding performance in the six protocols of the TSM initiative.

### **Crisis Management Planning**

Glencore nickel assets' corporate crisis management plan meets the intent of the TSM crisis management planning protocol, and is implemented at all sites. The company will conduct crisis management training at the corporate level in August 2015. It did not conduct this training in 2014.

### **Tailings Management**

In 2014, Raglan Mine conducted a formal independent review of its tailings management system. Based on the result, indicator 4 moved from a Level C in 2013 to a Level B in 2014. Sudbury maintained four Level AAA ratings for the first four indicators and a Level A rating for the last indicator, which is consistent with the 2013 verification.

### **Safety and Health**

Raglan and Sudbury maintained Levels AAA and AA for safety and health in 2014.

### **Biodiversity Conservation Management**

In 2013, Raglan achieved Levels AA, C and B for this protocol. In 2014, Raglan self-assessed at Levels B, C and C, indicating that this is an area for focus and improvement. Going forward, Raglan will enhance its biodiversity requirements through the recertification of ISO 14001 and the implementation of an environmental forum with communities. Sudbury maintained Level AAA for the indicators 1 and 2 and a Level A for the third indicator in 2014.

### **Aboriginal and Community Outreach**

Raglan and Sudbury maintained Levels AAA and AA for Aboriginal and community outreach in 2014.

### **Energy Use and GHG Emissions Management**

Although robust reporting and verification systems are in place, Sudbury INO dropped from a Level AAA to a Level A for indicator 2 compared with 2013 results (the facility did not publish a Sudbury INO sustainability report in 2014 indicating its performance against its energy and GHG targets). Raglan maintained Levels AAA and A as per 2013 verified performance.

## **COPPER CANADA OPERATIONS**

Glencore Copper Canada Operations are part of a network of transformation operations, which includes smelters and refineries. With support services based in Toronto, the smelters and refineries are part of the larger Glencore copper business.

### **Crisis Management Planning**

Glencore Copper Canada Operations' corporate crisis management plan meets the intent of the TSM crisis management planning protocol, and is implemented at all sites. Kidd Operations reported "yes" to all three indicators. Both CCR and Horne Smelter answered "yes" to two out of three requirements. At CCR, several emergency simulations occur throughout the year. However, the crisis notification process needs to be improved to ensure appropriate actions are taken in a timely manner. The Horne Smelter requires the completion of a complete simulation before it marks itself in compliance with the requirement.

**COMPANY PROFILE****GLENCORE****Aboriginal and Community Outreach**

The Horne Smelter has rated all aspects of Aboriginal and community outreach at a Level AAA. The facility has a long-standing collaborative relationship with the local community. At CCR, effective community of interest (COI) response mechanism is currently rated at a Level AAA. All other indicators are rated at a Level AA. These strong results are achieved as a result of active and meaningful engagement and communications with le Comité des Citoyens de Montréal-Est, which has been in place since 1992. Kidd Operations maintained its Level AAA ranking for COI identification and response.

**Biodiversity Conservation Management**

The biodiversity results for CCR and Horne Smelter are consistent with their externally verified 2013 results, and biodiversity programs are in place at both sites. Kidd Operations' rating remained at Level AAA for indicators 1 and 2. Kidd achieved a Level A for indicator 3 and needs increased reporting and independent review to improve.

**Health and Safety**

CCR and Horne Smelter self-assessed all indicators at Level AAA and demonstrated continual improvement in total recordable injury rate reduction and for being fatality free. Kidd Operations maintained a Level AAA for indicators 1 to 4 and a Level AA for indicator 5.

**Energy Use and GHG Emissions**

CCR has energy management plans, a reporting system, and targets in place. Horne Smelter self-assessed its management system at a Level B, a lower rating compared to 2013. CCR reviews the program on an annual basis and communicates the results to all employees. Kidd Operations achieved a Level AAA score for its management system, an improvement over its Level A rating in 2013.

**Tailings Management**

For tailings management, Kidd Operations is currently rated at Level AAA for policy and commitment, and at Level A for all other indicators. In 2015, Kidd has scheduled an external Dam Safety Review, which may improve its remaining scores. Horne Smelter's results improved from a Level B to a Level A for indicator 1. The facility also improved its TSM performance for assigned accountability and responsibility for tailings management from a Level C to a Level AA.

**ZINC OPERATIONS**

Glencore Zinc Canada Operations include mining and metallurgical operations in eastern Canada.

**Biodiversity Conservation Management**

Brunswick Smelter has improved its biodiversity scores once again. Both planning and reporting of biodiversity conservation management were self-assessed at Level AAA. The facility needs to make only a small modification to its environment policy before indicator 1, which is currently assessed at Level AA, can progress to Level AAA. CEZinc had the same scores as in 2013 for the three indicators.

**Safety and Health**

Brunswick Smelter and CEZinc self-assessed their performance at Level AAA for the planning, implementation, and operation indicator, as well as the training, behaviour and culture indicator. Both sites also moved from a Level A to a Level AA for indicator 1, policy, commitment and accountability.

**Crisis Management Planning**

A lot of work on crisis management planning and preparedness occurred in 2014 with positive results. At both the corporate and facility level, Brunswick Smelter and CEZinc now meet all the criteria for indicator 2 of this protocol.

**COMPANY PROFILE****GLENCORE**

Brunswick Smelter improved its notification system, which was tested several times last year. However, the results still identified gaps in the areas of training and preparedness.

**Aboriginal and Community Outreach**

Brunswick Smelter self-assessed at Level AAA across all indicators within this protocol. This is an improvement over last year, where most indicators were assessed at Level AA. CEZinc had the same scores as in 2013.

**Energy Use and GHG Emissions**

Both sites have energy management plans and reporting systems in place. Brunswick Smelter moved from a Level A to a Level AA for indicator 1.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.GLENCORE.COM](http://WWW.GLENCORE.COM)**



**GLENCORE KIDD OPERATIONS NEAR TIMMINS, ONTARIO.**

# MEASURING COMPANY PERFORMANCE GLENCORE COPPER OPERATIONS

## CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
GLENCORE COPPER OPERATIONS	✔	✔	✘
CCR REFINERY	✔	✘	✔
HORNE SMELTER	✔	✔	✘
KIDD OPERATIONS	✔	✔	✔

## ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



## SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- TRAINING, BEHAVIOUR AND CULTURE
- PLANNING, IMPLEMENTATION AND OPERATION
- MONITORING AND REPORTING
- PERFORMANCE



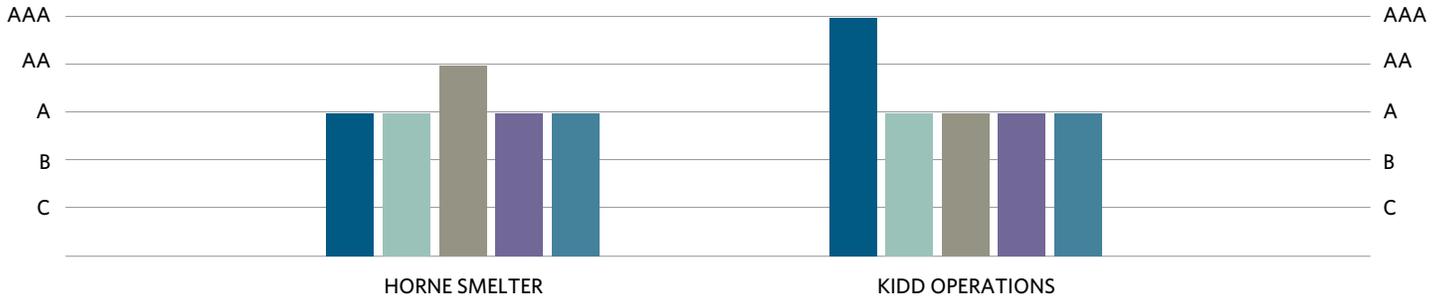
Self-assessed results; last external verification: 2013; next external verification: 2016.



# MEASURING COMPANY PERFORMANCE GLENCORE COPPER OPERATIONS

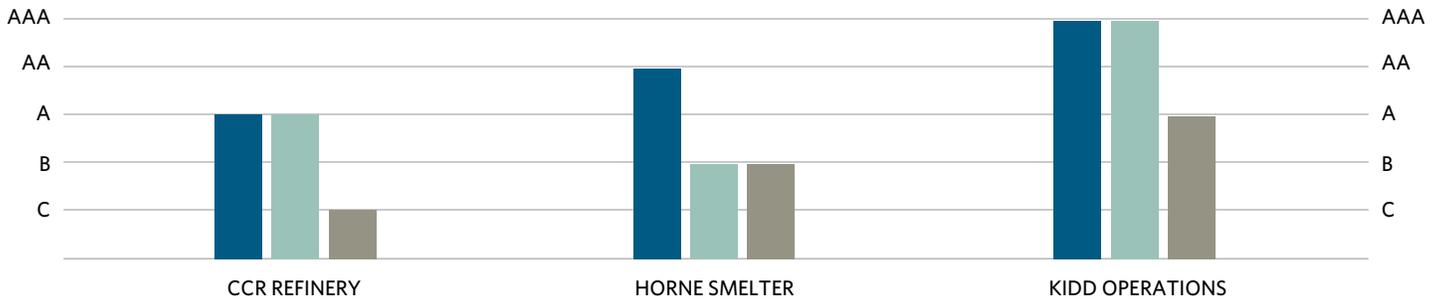
## TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
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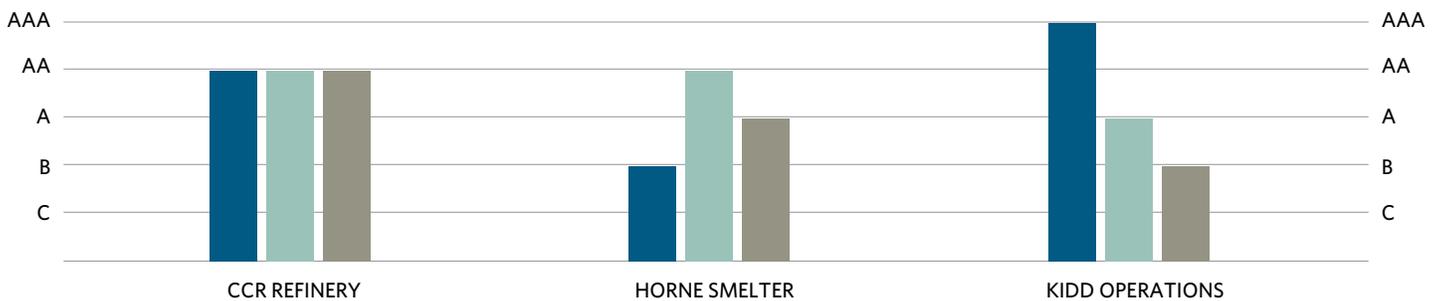
## BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



## ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



Self-assessed results; last external verification: 2013; next external verification: 2016.



# MEASURING COMPANY PERFORMANCE GLENCORE NICKEL OPERATIONS

## CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
GLENCORE NICKEL OPERATIONS	✓	✓	✗
RAGLAN MINE	✓	✓	✓
SUDBURY INO	✓	✓	✓

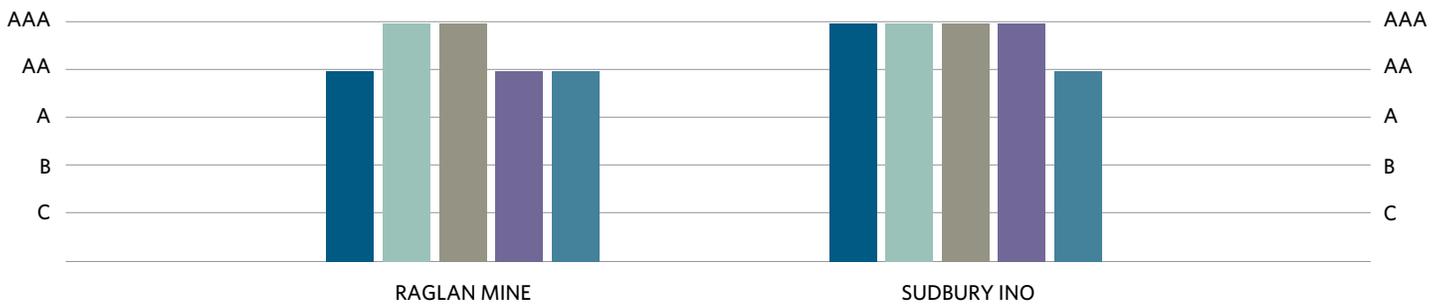
## ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



## SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- TRAINING, BEHAVIOUR AND CULTURE
- PLANNING, IMPLEMENTATION AND OPERATION
- MONITORING AND REPORTING
- PERFORMANCE



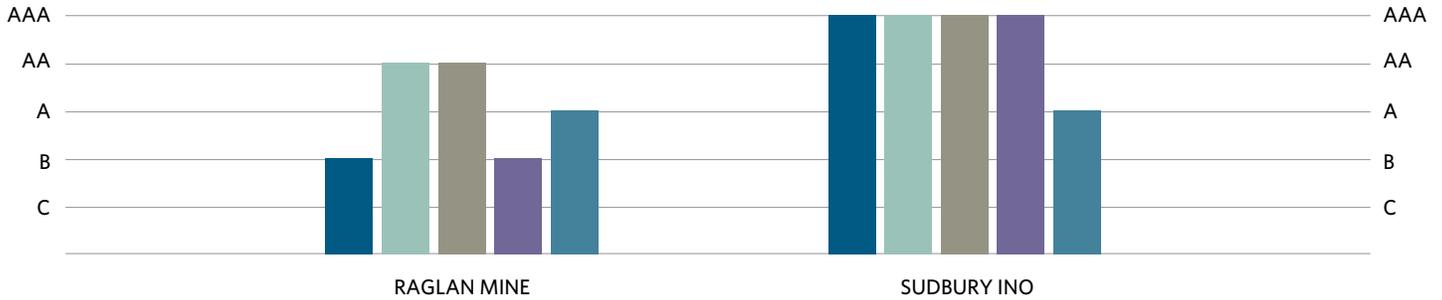
Self-assessed results; last external verification: 2013; next external verification: 2016.



# MEASURING COMPANY PERFORMANCE GLENCORE NICKEL OPERATIONS

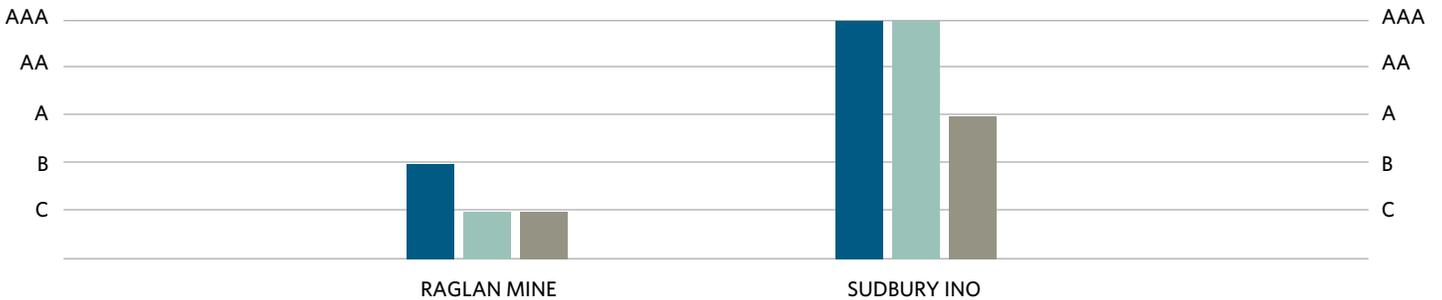
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- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT



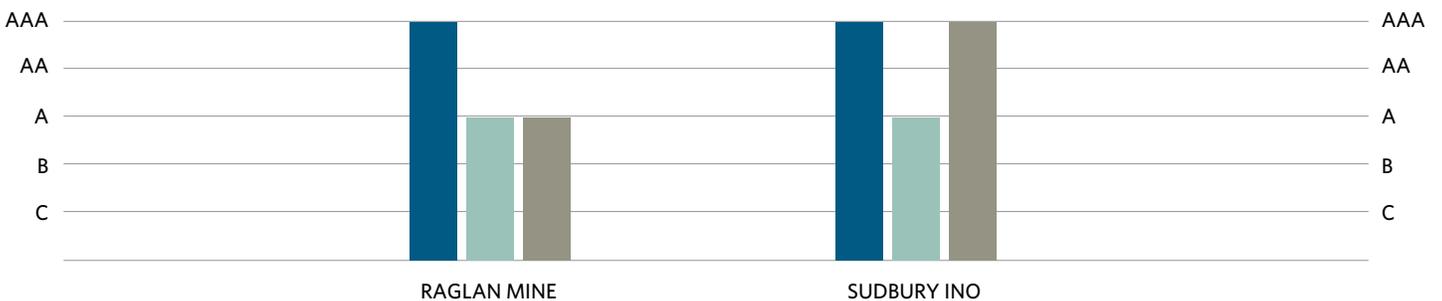
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- BIODIVERSITY CONSERVATION REPORTING



## ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



Self-assessed results; last external verification: 2013; next external verification: 2016.



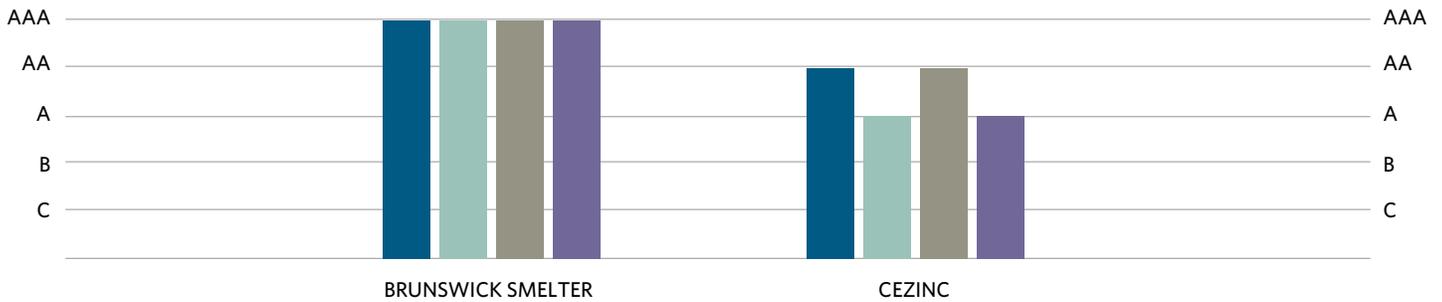
# MEASURING COMPANY PERFORMANCE GLENCORE ZINC OPERATIONS

## CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
GLENCORE ZINC OPERATIONS	✓	✓	✗
BRUNSWICK SMELTER	✗	✓	✗
CEZINC	✓	✓	✓

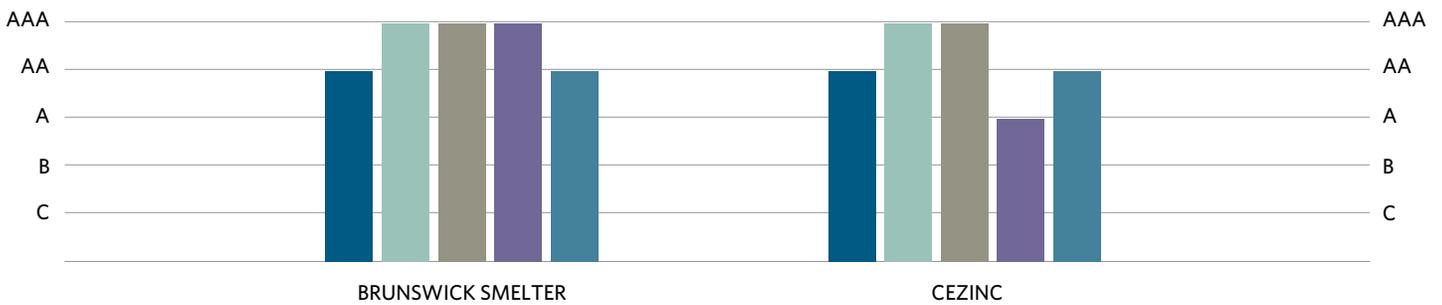
## ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

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- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



## SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- MONITORING AND REPORTING
- PLANNING, IMPLEMENTATION AND OPERATION
- PERFORMANCE
- TRAINING, BEHAVIOUR AND CULTURE



Self-assessed results; last external verification: 2013; next external verification: 2016.



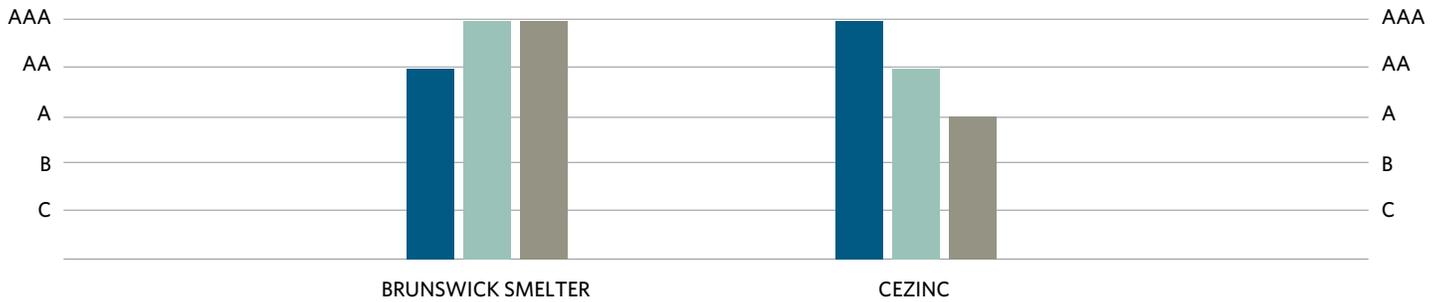
# MEASURING COMPANY PERFORMANCE

## GLENCORE ZINC OPERATIONS



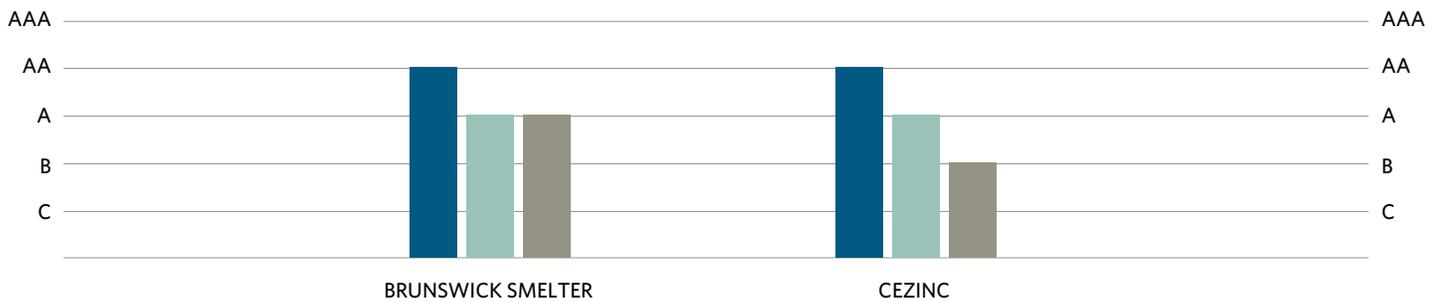
### BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

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- BIODIVERSITY CONSERVATION REPORTING



### ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



Self-assessed results; last external verification: 2013; next external verification: 2016.



# HUDBAY

## COMPANY PROFILE - HUDBAY MINERALS INC.

Hudbay is an integrated mining company that produces copper concentrate (containing copper, gold and silver) and zinc metal. It is headquartered in Toronto, Ontario, and listed on the Toronto, New York and Lima stock exchanges under the ticker symbol “HBM.” Hudbay has operating mines in Manitoba and the Cusco Region of Peru, and a development project in Arizona.

Hudbay experienced a pivotal year in 2014. Five years earlier, the company outlined a growth plan for creating long-term value. By the end of 2014, the company’s action on the plan had resulted in major successes: the Reed and Lalor mines in Manitoba both achieved steady-state commercial production, and the Constancia mine in Peru achieved commercial production on schedule by the middle of 2015. These new operations joined the 777 mine in Manitoba, a reliable producer for many years.

Hudbay’s growth plan reflects its philosophy: the best way to deliver sustainable value in mining is by finding and building new mines and then operating them in an environmentally and socially responsible way.

The following are Hudbay’s TSM performance results for its operating facilities in Flin Flon and Snow Lake, Manitoba.

In 2014, the company achieved its goal of maintaining previous TSM results. The company completed a scheduled internal audit against MAC’s guidance documents on tailings management. Of particular importance to Hudbay was confirming that its tailings management score accurately reflected its efforts.

Energy and GHG emissions management is the only protocol for which Hudbay has not yet achieved a Level A rating, although the company has achieved some energy use goals (and subsequent GHG reductions), Hudbay’s facility is integrated and includes a number of mines and other operating entities at both end of life and early-stage. This has caused difficulty in determining appropriate targets in the absence of a consistent base year to measure against. Hudbay will continue to set targets and goals related to energy use and GHG emissions, despite this hurdle.

For 2015, Hudbay is anticipating that it can maintain its TSM performance results. The company is committed to participating in ongoing reviews of the tailings management protocol and guidance documents, and will set appropriate goals once reviews are finalized. Hudbay is also advancing its voluntary implementation of TSM requirements at its newly operational Constancia site in Peru.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.HUSBAYMINERALS.COM](http://WWW.HUSBAYMINERALS.COM)**



# MEASURING COMPANY PERFORMANCE

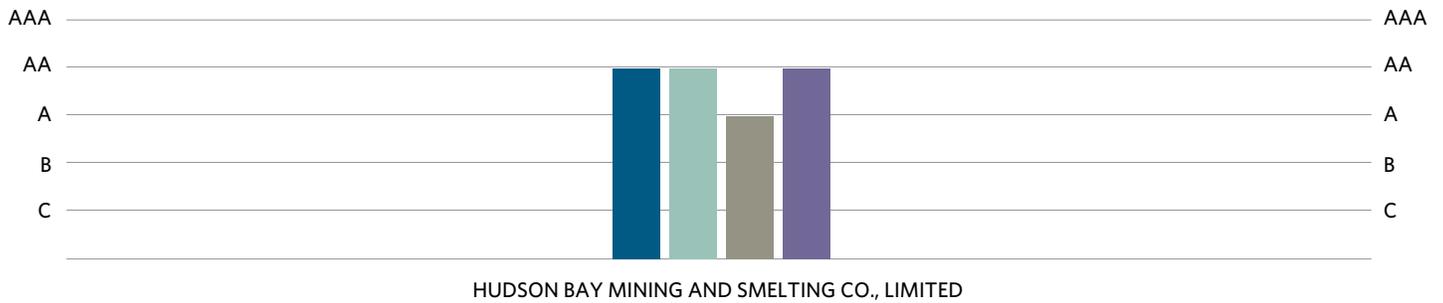
## HUBBAY MINERALS INC.

### CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
HUBBAY MINERALS INC.	✓	✓	✓
HUDSON BAY MINING AND SMELTING CO., LIMITED	✓	✓	✓

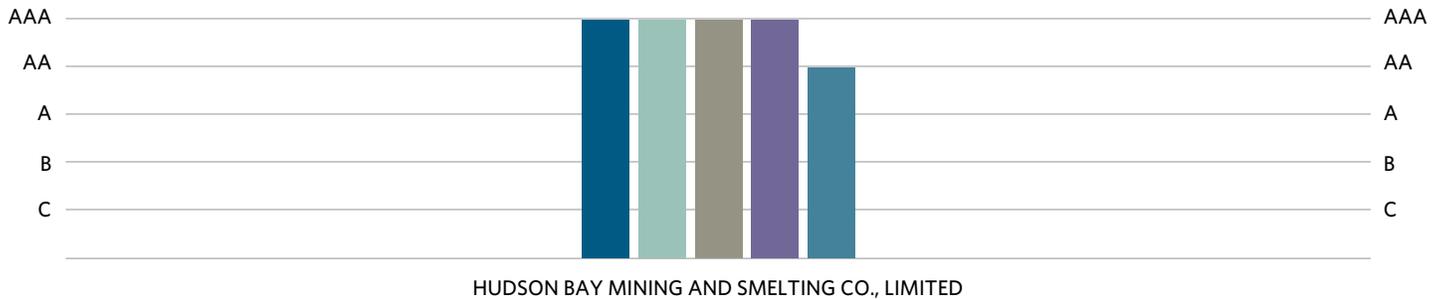
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- REPORTING



### SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- MONITORING AND REPORTING
- PLANNING, IMPLEMENTATION AND OPERATION
- PERFORMANCE
- TRAINING, BEHAVIOUR AND CULTURE



Self-assessed results; last external verification: 2012; next external verification: 2015.

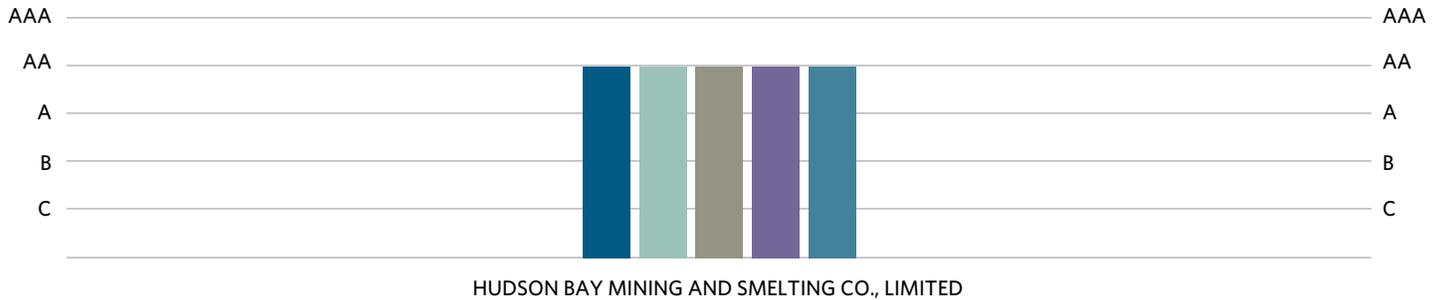


# MEASURING COMPANY PERFORMANCE HUBBAY MINERALS INC.



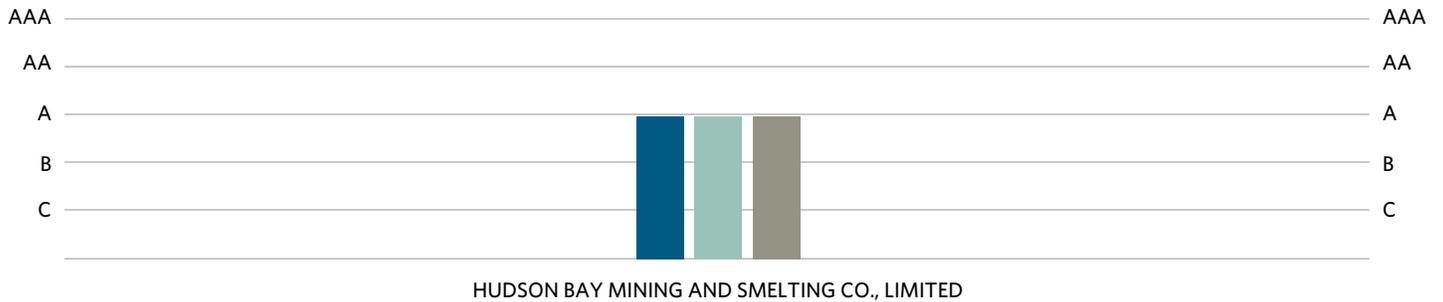
## TAILINGS MANAGEMENT ASSESSMENT

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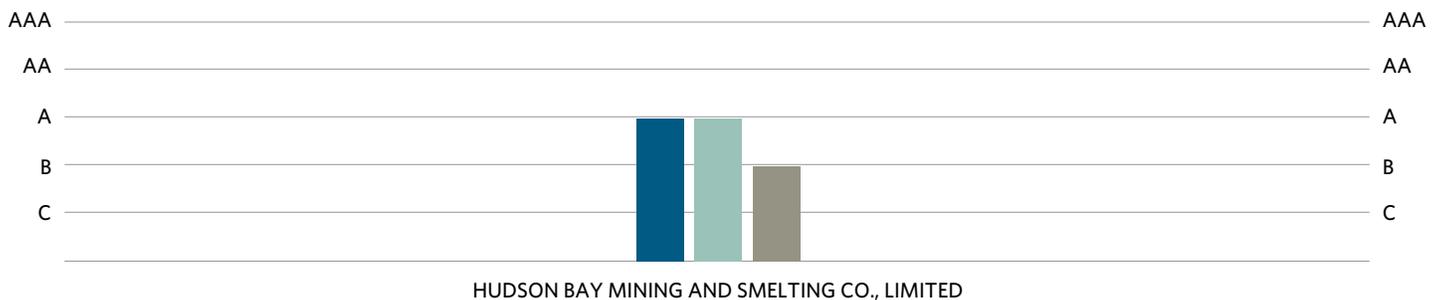
## BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



## ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS



Self-assessed results; last external verification: 2012; next external verification: 2015.





## COMPANY PROFILE - IAMGOLD CORPORATION

IAMGOLD is a leading mid-tier Canadian gold mining company, with four operating gold mines (including current joint ventures) on three continents. IAMGOLD has a solid base of strategic assets in Canada, South America and Africa, which is complemented by development and exploration projects, and continued assessment of accretive acquisition opportunities.

The Westwood Gold Mine began commercial production in 2014. Westwood uses some of the former Doyon infrastructure, such as the former open pit for tailings storage. In this way, Westwood minimizes its environmental footprint and avoids using undisturbed land for this purpose. IAMGOLD has included Westwood in its TSM reporting since 2009, well before the mine was operational.

In 2012, IAMGOLD acquired the Côté Gold Project in northern Ontario. The project is located in the Chester and Neville Townships, District of Sudbury, in northeastern Ontario. It is approximately 20 kilometres southwest of Gogama, 130 kilometres southwest of Timmins, and 200 kilometres northwest of Sudbury. IAMGOLD is assessing the potential to construct and operate a new open-pit gold mine on the property. If this project advances towards construction and development, IAMGOLD will add it to its future TSM reporting. IAMGOLD is not reporting TSM results for the Mouska Mine, as it was closed in 2014, and is only reporting self-assessed results for the Niobec niobium mine, because it was sold in January 2015.

Zero harm is the vision that guides and drives IAMGOLD. The company is committed to continually striving towards the highest standards in human health and safety, minimizing its impact on the environment, and working cooperatively with host communities and governments. Zero harm is both a goal and a journey. It is a direct and clear statement, which is well understood by all employees in whatever language they operate, and is part of how they conduct business. Together with its partners, IAMGOLD brings high standards of safety, environmental responsibility and social sensitivity to areas without a history of modern mining or exploration. IAMGOLD believes that not only is partnering with employees, communities and host countries to build a healthy, safe and sustainable future the right thing to do, it is good business practice. The TSM initiative is a component of zero harm and is, therefore, well embedded in IAMGOLD's operating practices and pursuit of excellence.

In 2015, IAMGOLD's Essakane Gold Mine in Burkina Faso was a finalist for both TSM Excellence Awards, which celebrate innovative projects that raise the bar for corporate responsibility in the Canadian mining sector. IAMGOLD was a finalist for the TSM Environmental Excellence Award for its support of a school groves project, which enhanced biodiversity around schools near the Essakane mine, and taught students techniques in tree



**COMPANY PROFILE****IAMGOLD CORPORATION**

planting and care. IAMGOLD's multi-functional platform was a finalist for the TSM Community Engagement Award for the economic and social benefits it provides to local women of the Essakane village.

Over the years, IAMGOLD has continually strengthened its application of the TSM protocols. The 2014 verified TSM results show an overall improvement from the previous year. The results now meet or exceed a Level A ranking across all of the six TSM protocols for all of IAMGOLD's operating sites.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.IAMGOLD.COM](http://WWW.IAMGOLD.COM)**



**IAMGOLD'S MULTI-FUNCTIONAL PLATFORM  
FOR LOCAL WOMEN NEAR THE ESSAKANE MINE.**

# MEASURING COMPANY PERFORMANCE

## IAMGOLD CORPORATION



### CRISIS MANAGEMENT PLANNING ASSESSMENT

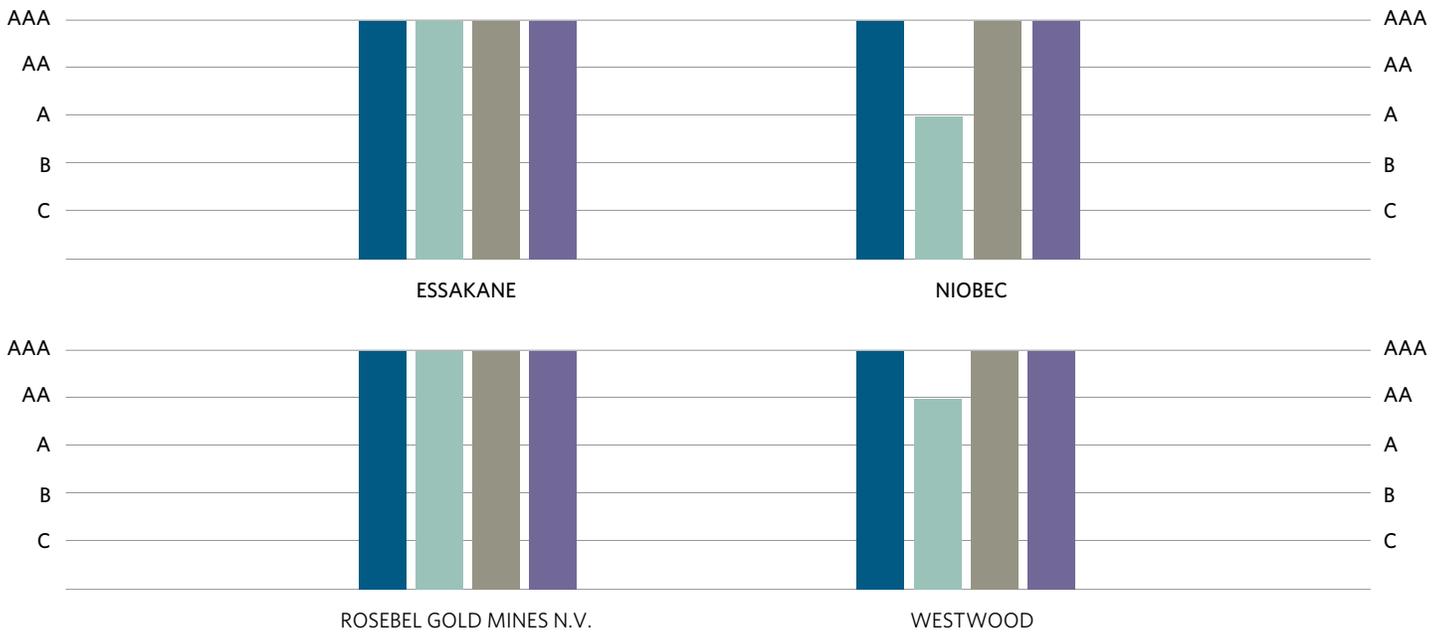
Externally Verified

FACILITY	PREPAREDNESS	REVIEW	TRAINING
IAMGOLD CORPORATION	✓	✓	✓
ESSAKANE	✓	✓	✓
NIOBEC	✗	✓	✓
ROSEBEL GOLD MINES N.V.	✓	✓	✓
WESTWOOD	✓	✓	✓



### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING

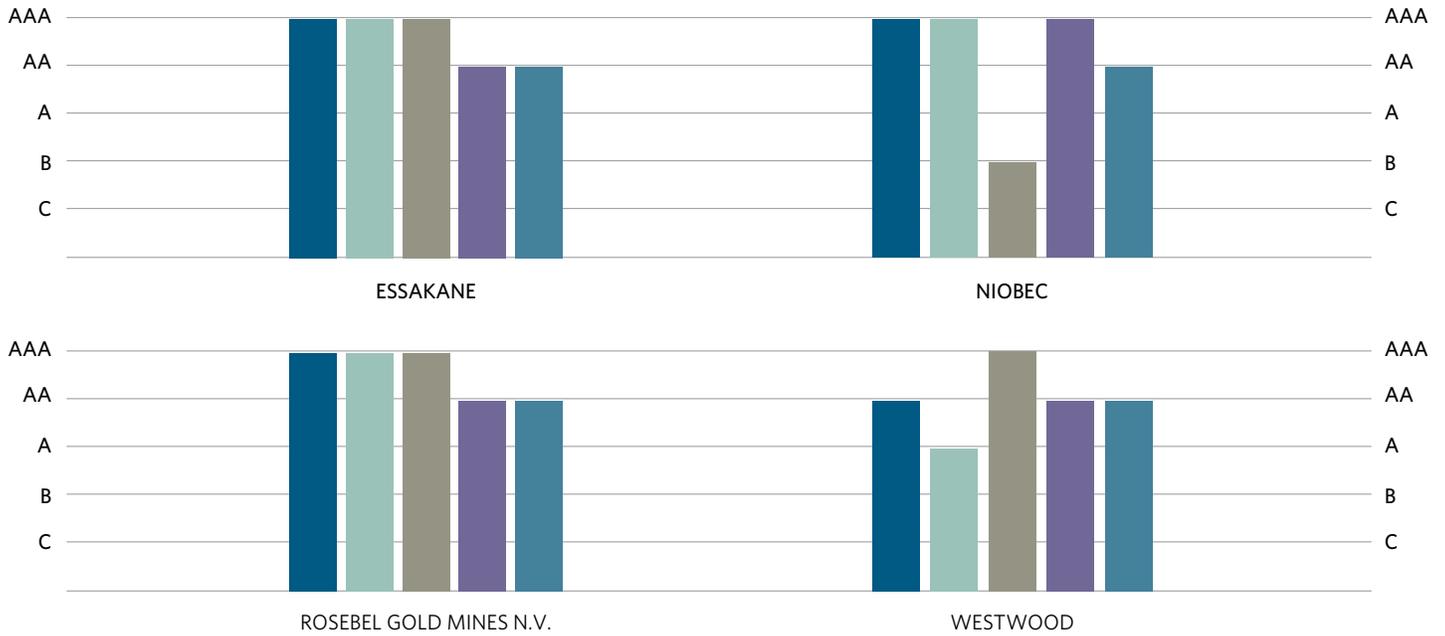


# MEASURING COMPANY PERFORMANCE IAMGOLD CORPORATION

Externally  
Verified

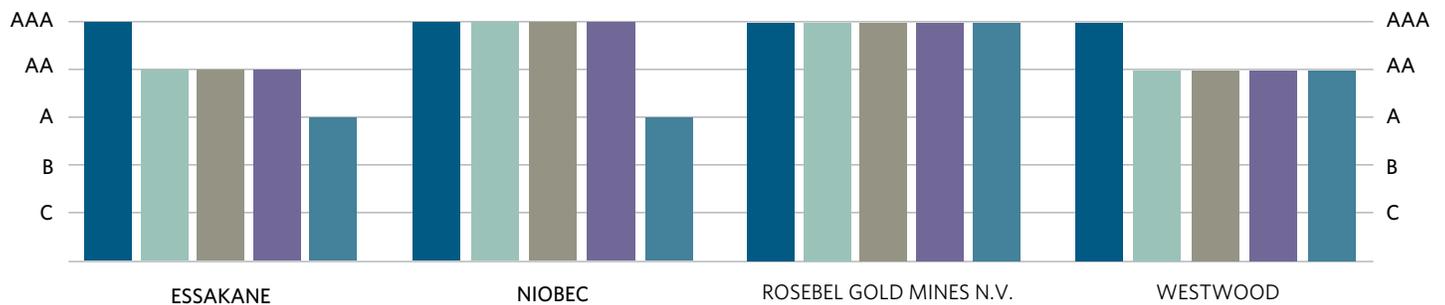
## SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- MONITORING AND REPORTING
- PLANNING, IMPLEMENTATION AND OPERATION
- PERFORMANCE
- TRAINING, BEHAVIOUR AND CULTURE



## TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- TAILINGS MANAGEMENT SYSTEM
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT



# MEASURING COMPANY PERFORMANCE

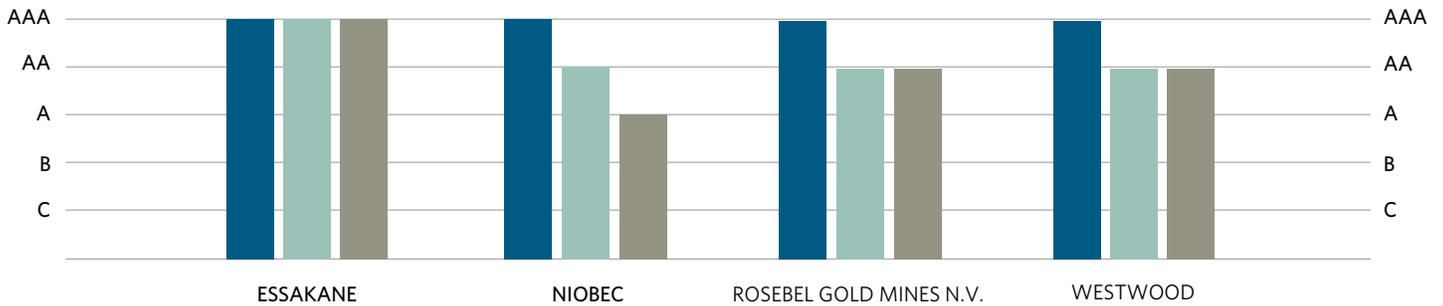
## IAMGOLD CORPORATION



### BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

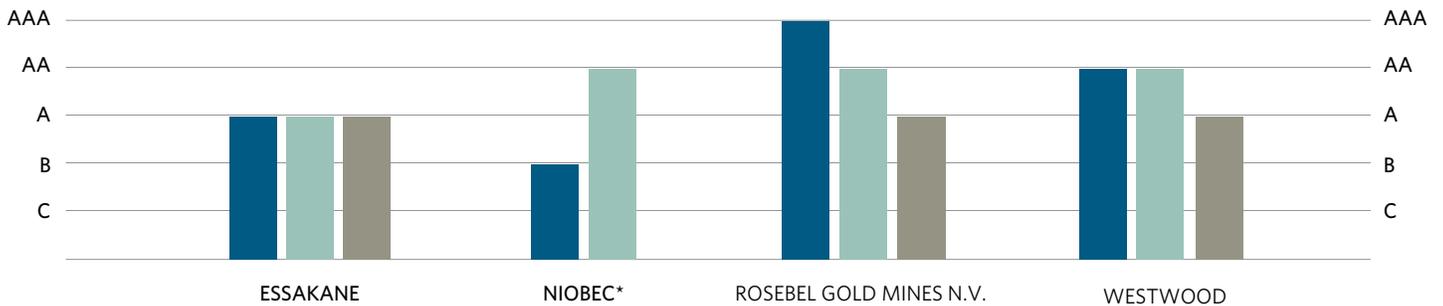
Externally Verified

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



### ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG MANAGEMENT SYSTEMS
- ENERGY AND GHG PERFORMANCE TARGETS
- ENERGY USE AND GHG REPORTING SYSTEMS



\*Niobec's total emissions are under 25kt CO<sub>2</sub>e and, therefore, is not required to report performance for indicators 1 and 3 of the energy use and GHG emissions management protocol.





## COMPANY PROFILE - IMPERIAL METALS CORPORATION

Imperial Metals Corporation (Imperial) is a British Columbia mining company active in base and precious metal acquisition, exploration, development and mine operation. Imperial has three mine operations in British Columbia producing copper and gold, with silver and molybdenum as by-products: Red Chris copper/gold mine (100%), Mount Polley copper/gold mine (100%), Huckleberry copper mine (50% interest, non-operating partner). Imperial also has the Sterling gold mine in Nevada (100%). Imperial's property portfolio also includes the Ruddock Creek zinc/lead exploration project (50% interest) located in British Columbia.

Imperial's Mount Polley Mine, operated by Mount Polley Mining Corporation (MPMC), is a copper and gold open-pit mine with a developing underground project. It is located in south-central British Columbia.

Following the tailings storage facility (TSF) breach, Imperial reviewed its TSM assessment for tailings management and had its first external verification completed on its 2013 TSM self-assessment results. An update on the Mount Polley breach and a discussion of the company's TSM results follow.

### Mount Polley Mine Tailings Storage Facility Breach

Early on August 4, 2014, a TSF breach occurred at Imperial's Mount Polley Mine causing the release of water and tailings. This release resulted in the following physical impacts to the downstream environment:

- Erosion and scour of the embankment separating the TSF from Polley Lake, as well as along Hazeltine Creek.
- Deposition of trees and woody debris in Polley Lake, along the sides of the erosion path associated with Hazeltine Creek, into Quesnel Lake at the mouth of Hazeltine Creek.
- Deposition of tailings and eroded earth in Polley Lake, Hazeltine Creek and Quesnel Lake at the mouth of Hazeltine Creek.

Imperial senior management responded immediately and arrived at the mine site on August 4, 2014, to work with mine operating personnel, local agencies, provincial ministry officials and the Engineer of Record to assess the extent of the breach and the impact of the release of water and tailings into the surrounding area. It is important to note the tailings are alkaline (average pH 8.5) and are not acid generating. Monitoring instruments and on-site personnel had no indications of an impending breach.



**COMPANY PROFILE****IMPERIAL METALS CORPORATION****Mount Polley Mine TSF Breach Investigation**

The Government of British Columbia, with the support of the Soda Creek Indian Band (Xats'ull First Nation) and Williams Lake Indian Band, ordered an independent engineering investigation and inquiry into the Mount Polley TSF breach. The investigation was conducted by a panel of experts (the Panel) that investigated the cause of the failure, including geotechnical standards, design of the dam, maintenance, regulations, inspections regimes and other matters the Panel deemed appropriate.

The Panel released a report on January 31, 2015, on the cause of the TSF breach. The Panel's determination of the cause of the breach is in agreement with the results of the company's internal investigation. The Panel found no evidence of failure due to human intervention, overtopping, or piping and/or cracking resulting in internal erosion of the dam structure. The Panel indicated that the water accumulation within the TSF was not the cause of failure, but contributed to the release of tailings. Imperial had earlier recognized that water levels would increase in the TSF, and had taken steps commencing in 2006, to address this issue.

The Panel concluded that the perimeter embankment of the TSF failed because a glacio-lacustrine layer lying approximately eight metres below the base of the dam in the area of the breach was not as strong as had been assumed in the design of the TSF.

Construction over the 18-year life of the TSF was at all times carried out in accordance with design criteria provided by the Engineers of Record and approved by the Ministry of Energy and Mines. The Panel noted that the omissions associated with site characterizations remained undetected notwithstanding the large number of experienced geotechnical engineers associated with the TSF over the years.

Design criteria accepted for the TSF required a factor of safety of 1.3 during the operating life of the mine, increasing to 1.5 at closure. Based on the calculations presented in the design reports, the factor of safety of the perimeter embankment where the failure occurred exceeded 1.5 at the time of failure.

**Impact of the Mount Polley Breach**

Imperial's first priority was and continues to be the health and safety of its employees and neighbours. The company is grateful no loss of life or injury, or personal property damage, occurred due to this event. Imperial maintains its resolve to mitigate the effects of the breach and restore the TSF, Polley Lake and Hazeltine Creek, and it continues to work closely with regulators, the community and First Nations partners.

Imperial has made an application for the resumption of Mount Polley operations to the regulators. In July 2015, the British Columbia Ministry of Energy and Mines and the Ministry of Environment have issued permit amendments to recommence modified operations at the Mount Polley Mine.

Imperial is incurring costs for rehabilitation and restoration. While the precise costs of rehabilitation and restoration are presently unknown, the company believes these costs can be managed over time given the underlying value of Imperial's assets, the convertible debenture financing, the current sources of liquidity, insurance proceeds and the expected cash flow from the Red Chris Mine.

**Relationship with First Nations**

The Mount Polley Mine is in the traditional territory of the Soda Creek Indian Band and the Williams Lake Indian Band. MPMC has participation agreements in place with both First Nations, and those agreements were the first to be completed by any mining company in British Columbia at a brownfields site. These participation agreements include regular meetings between MPMC managers and representatives from the two First Nations communities to discuss the operation of the mine, the company's projects, the permitting process and partnership opportunities.

**COMPANY PROFILE****IMPERIAL METALS CORPORATION**

The strong relationship and partnerships between MPMC and the First Nations communities have been key to the successes achieved since the tailings breach.

**Summary of Externally Verified TSM Results**

An external verification of the self-assessed TSM protocol performance levels for the period ending December 31, 2013 (pre-breach) has been completed by Golder Associates Ltd. The external verification confirmed a Level A for all the performance indicators of the Aboriginal and community outreach protocol. For safety and health, the facility was externally verified at a Level A for indicators 1, 2 and 4, and Levels AAA and AA, respectively, for indicators 3 and 5. The energy use and GHG emissions management indicators were verified to be at Level B (indicator 2) and Level C (indicators 1 and 3). The verification also identified gaps in crisis management planning at both the facility and the corporate level. Imperial will work to develop a formalized crisis management plan at the facility and finalize the plan at the corporate level. The biodiversity conservation management indicators were externally verified at Level C. However, the company has initiated activities related to biodiversity conservation with stakeholders and will work to structure them in a more integrated way.

In the case of tailings management, the verifier confirmed a Level A across all the indicators of this protocol. During the external verification, it was noted that the implementation of the tailings management system and the operation, maintenance and surveillance (OMS) manual were more challenging to verify because the mine was not operating at the time of the external verification.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.IMPERIALMETALS.COM](http://WWW.IMPERIALMETALS.COM)**



# MEASURING COMPANY PERFORMANCE

## IMPERIAL METALS CORPORATION



### CRISIS MANAGEMENT PLANNING ASSESSMENT

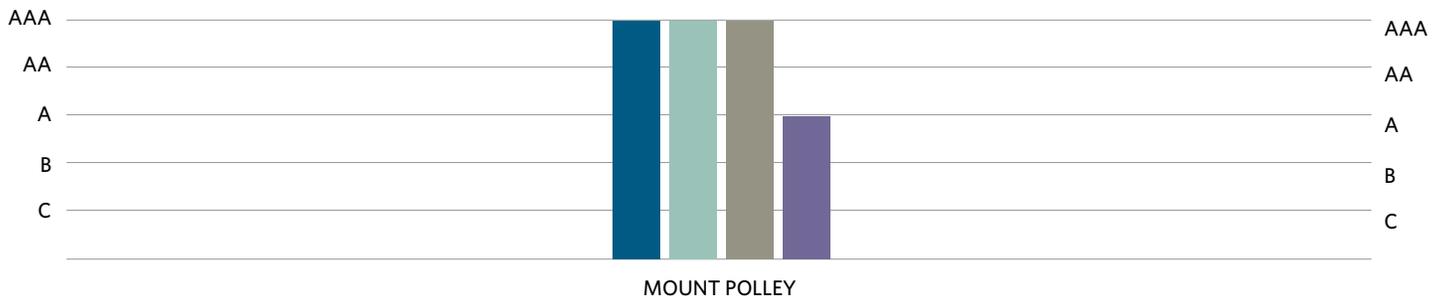
Externally Verified

FACILITY	PREPAREDNESS	REVIEW	TRAINING
IMPERIAL CORPORATE	☒	☒	☒
MOUNT POLLEY	☒	☒	☒



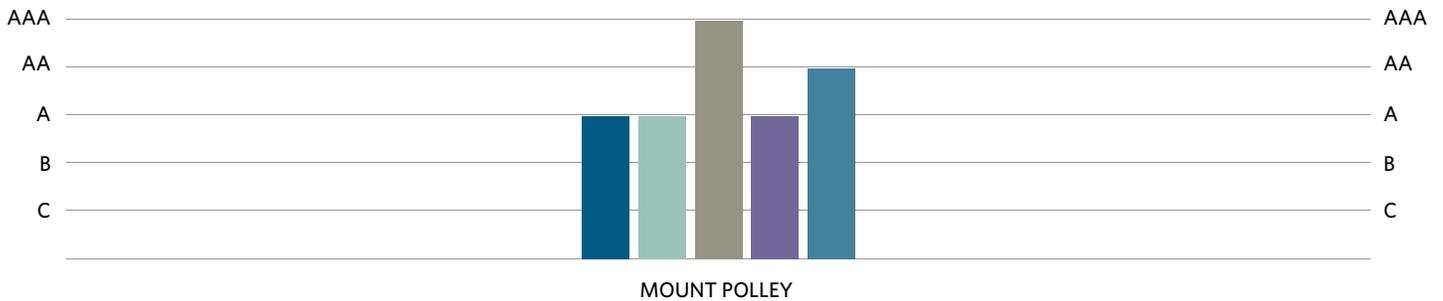
### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



### SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- MONITORING AND REPORTING
- PLANNING, IMPLEMENTATION AND OPERATION
- PERFORMANCE
- TRAINING, BEHAVIOUR AND CULTURE

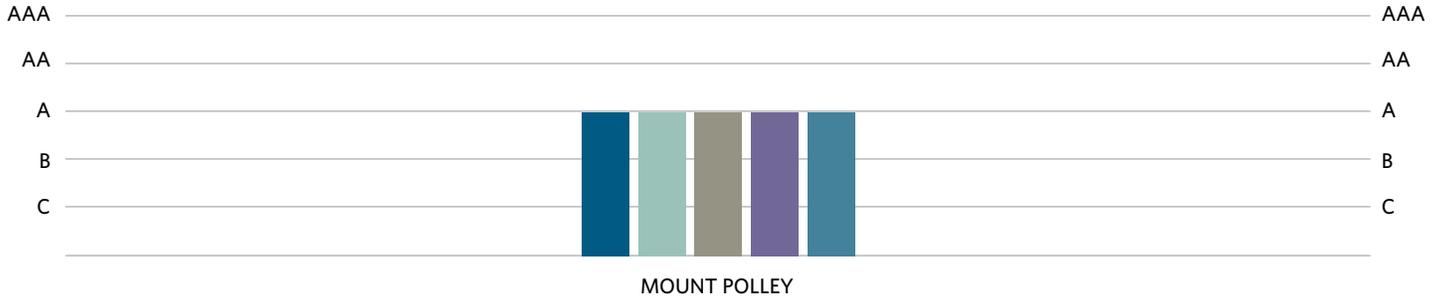


# MEASURING COMPANY PERFORMANCE IMPERIAL METALS CORPORATION

Externally  
Verified

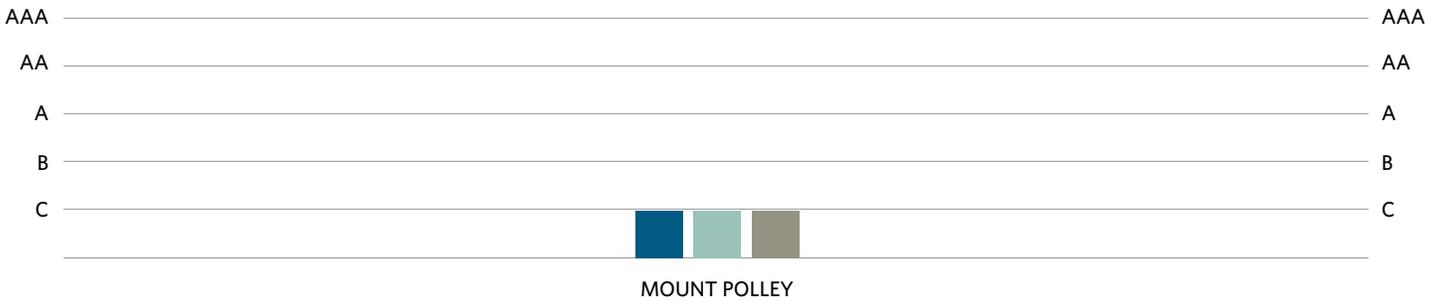
## TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- TAILINGS MANAGEMENT SYSTEM
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT



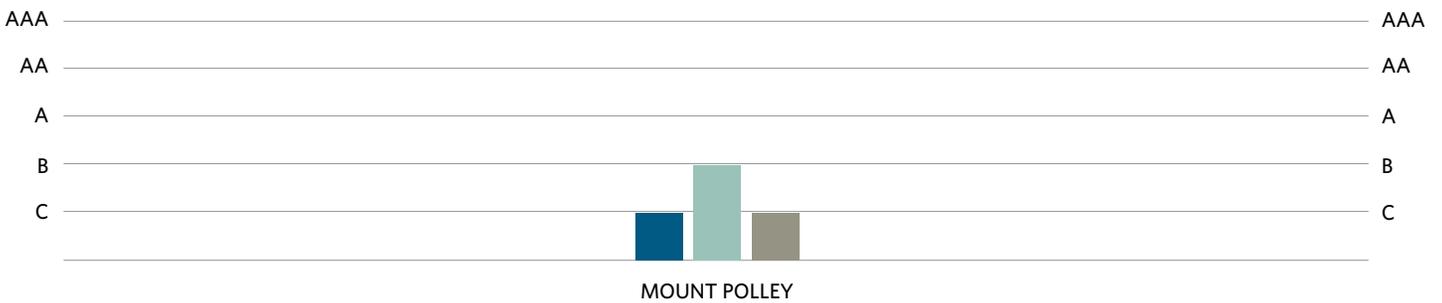
## BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



## ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS





## COMPANY PROFILE - NEW GOLD INC.

New Gold is an intermediate gold mining company with a portfolio of four producing mines and three significant development projects. These include the New Afton Mine in Canada, the Cerro San Pedro Mine in Mexico, the Mesquite Mine in the United States, and the Peak Mines in Australia. New Gold owns 100% of the Blackwater and Rainy River projects in Canada and 30% of the world-class El Morro project in Chile.

New Gold is committed to achieving the highest possible level of performance for safety, environmental protection and sustainable community development. This commitment drives New Gold to seek out those standards, protocols and performance indicators that assist its people in achieving these goals. New Gold has adopted standards such as the International Cyanide Management Code and the United Nations Global Compact. New Gold operations use ISO 14001 as the basis for their environmental management systems, and two of the four operations have achieved certification. For reporting, New Gold follows the guidelines of the Global Reporting Initiative and the Carbon Disclosure Project to ensure relevant information is made known to its communities of interest.

In 2013, New Gold developed environmental and community engagement and development management standards that incorporate TSM requirements, among other commitments. These standards ensure that TSM principles are applied at all New Gold operations in Canada and abroad.

In New Afton's third year of TSM reporting, the facility self-assessed its performance against the TSM protocols. The scope of the self-assessment included the company's processes for tailings management, energy use and GHG emissions management, biodiversity conservation management, Aboriginal and community outreach, safety and health, and crisis management planning.

New Gold's results for 2014 demonstrate improvement from the previous year's results. Notably, New Afton achieved improvements in results for tailings management, meeting or exceeding a Level A for all performance indicators within the protocol. New Afton also improved its performance in biodiversity conservation management, moving to Level AA and Level AAA for the indicators. For Aboriginal and community outreach, the mine either maintained or improved its strong results year-over-year. New Afton continues to develop its positive relationships with the Skeetchestn Indian Band and the Tk'emlúps te Secwe pemc, and is engaging with other parts of the local community.



**COMPANY PROFILE****NEW GOLD INC.**

For energy use and GHG emissions management, New Afton achieved a Level AAA in management systems and a Level AA in reporting systems, and rose to a Level A in performance targets. The company expects its results to improve for performance targets as its management system matures, and as the appropriate baseline data is collected. In 2014, New Afton became the first mine in North America to be certified under ISO 50001 for its energy management systems.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.NEWGOLD.COM](http://WWW.NEWGOLD.COM)**



**SKEETCHESTN INDIAN BAND MEMBERS  
PLANTING TREES AT A RECLAMATION SITE.**

# MEASURING COMPANY PERFORMANCE

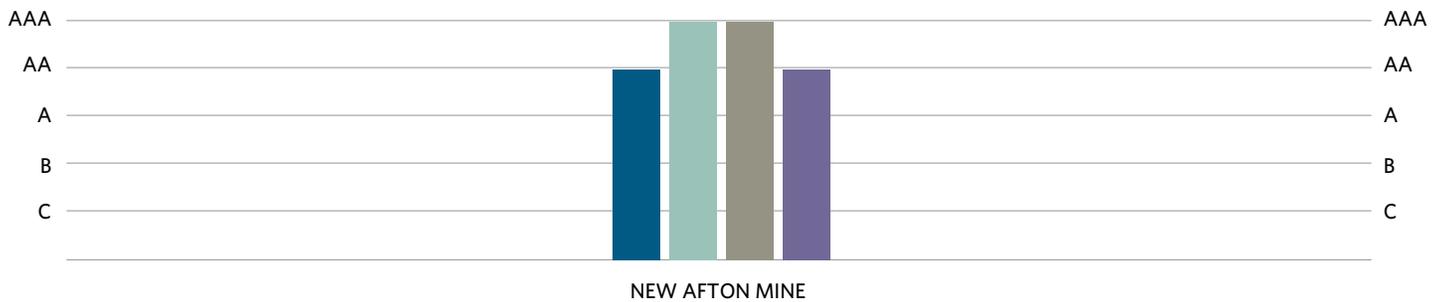
## NEW GOLD INC.

### CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
NEW GOLD INC.	☑	☑	☑
NEW AFTON MINE	☑	☑	☑

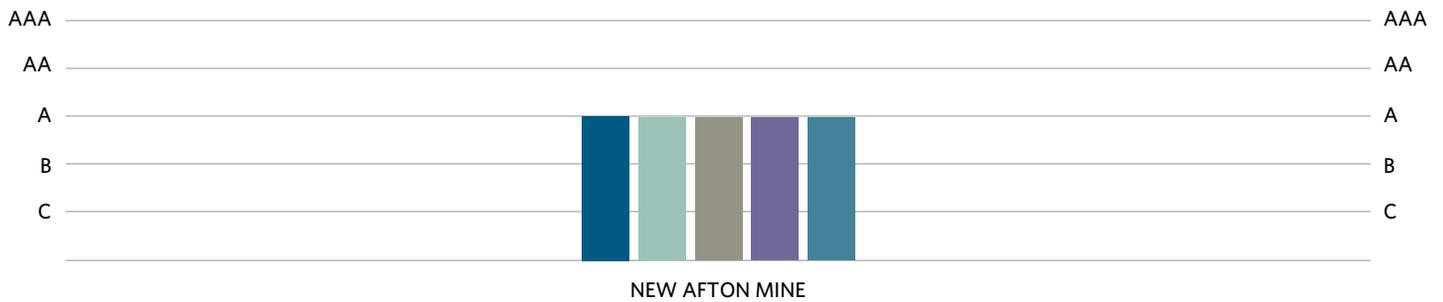
### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



### SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- MONITORING AND REPORTING
- PLANNING, IMPLEMENTATION AND OPERATION
- PERFORMANCE
- TRAINING, BEHAVIOUR AND CULTURE



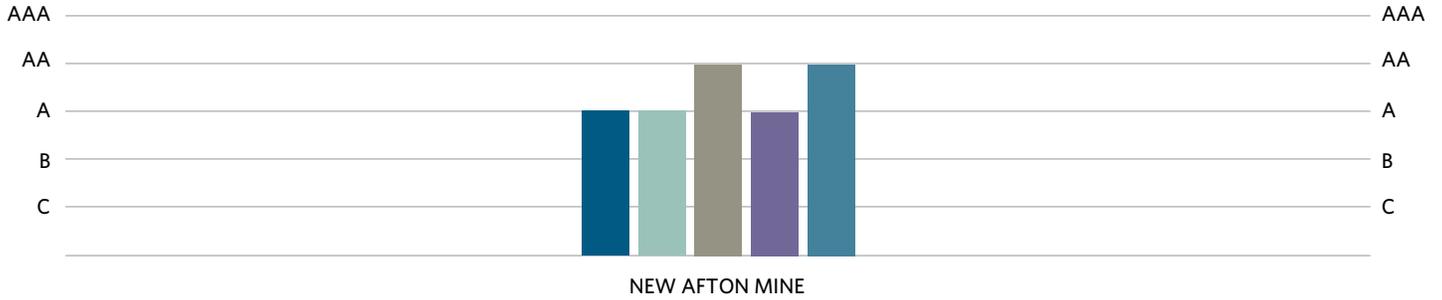
Self-assessed results; last external verification: 2013; next external verification: 2016.



# MEASURING COMPANY PERFORMANCE NEW GOLD INC.

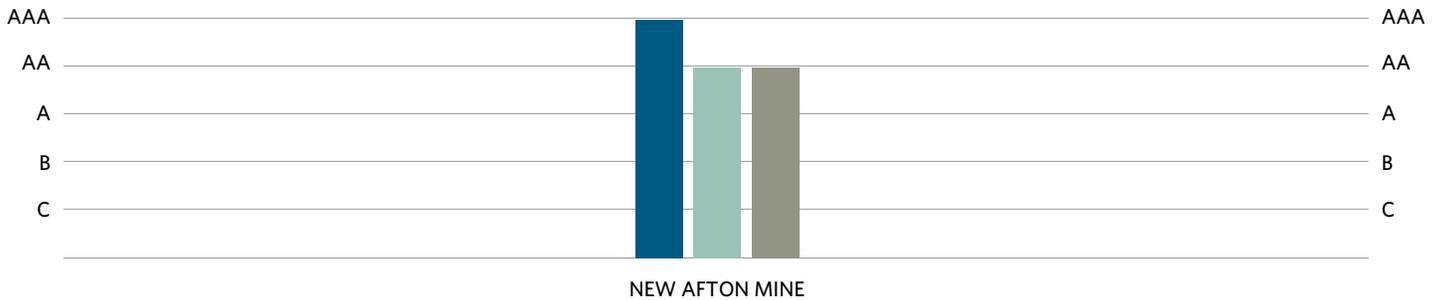
## TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



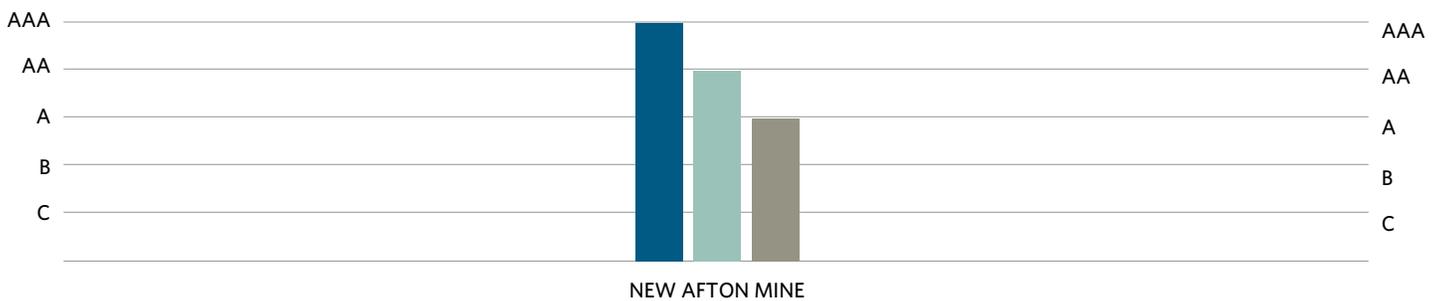
## BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



## ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



Self-assessed results; last external verification: 2013; next external verification: 2016.





## COMPANY PROFILE - NYRSTAR

Nyrstar is an integrated mining and metals business, with market-leading positions in zinc and lead, and growing positions in other base and precious metals. Nyrstar employs approximately 6,600 people and has mining, smelting and other operations in the Americas, Australia and Europe. Its operations include two mines in Canada: Myra Falls, British Columbia, and Langlois, Quebec. The company's corporate office is located in Zurich, Switzerland.

At Nyrstar, sustainability is viewed as a key driver of business success, and the company is committed to working with its stakeholders to achieve continual improvement in safety, health, environment and community (SHEC) performance. Nyrstar's Group SHEC Management Framework sets the direction for all SHEC activities and establishes a common approach to the management of SHEC risks at Nyrstar's sites. The framework is aligned with ISO 14001 and OHSAS 18001, and many of Nyrstar's sites are certified to these standards. TSM performance protocols help Nyrstar's Canadian sites address key safety, health and environmental risks and processes, and TSM requirements are integrated into the sites' SHEC management systems.

The Myra Falls and Langlois operations joined Nyrstar in 2011 as part of the acquisition of Breakwater Resources. Nyrstar Myra Falls is an underground base metal mine located on Vancouver Island, 90 kilometres southwest of Campbell River, British Columbia. The mine's location inside Strathcona Provincial Park on Vancouver Island provides unique challenges that heighten the importance of robust environmental and community management programs. Myra Falls has been reporting under MAC's TSM program since 2006. The Langlois mine is located in northwest Quebec near the town of Lebel-Sur-Quévillon. The mine, which was restarted in 2011 following a period of care and maintenance, resumed commercial production in the first half of 2012. Public reporting of facility-level TSM results for the Langlois mine will begin in 2016.

The 2014 assessment results for Myra Falls demonstrated improvements in several areas: crisis management preparedness, biodiversity conservation management, and safety and health training, monitoring and reporting. However, Nyrstar recognizes that further efforts are required in these and other TSM areas to elevate the site's sustainability performance to the levels expected by the company's management and stakeholders. It is expected that TSM scores for all applicable protocols will improve as the Nyrstar SHEC Management Framework is implemented across the company's operations.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.NYRSTAR.COM](http://WWW.NYRSTAR.COM)**



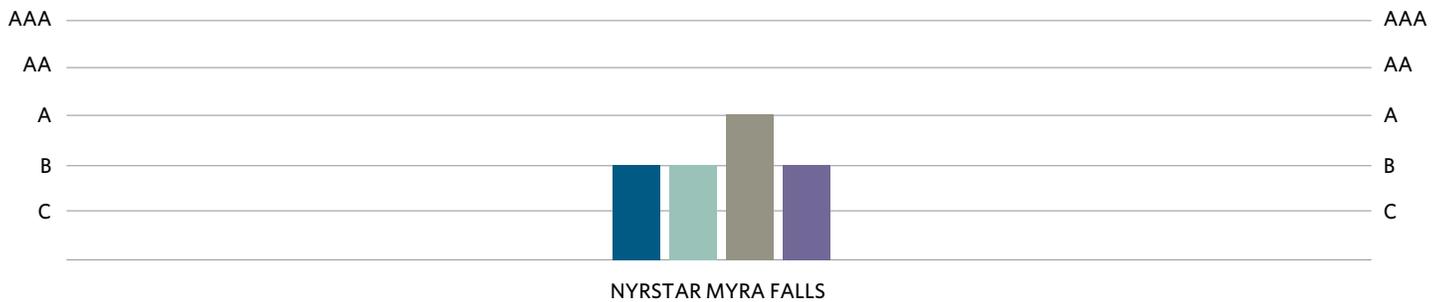
# MEASURING COMPANY PERFORMANCE NYRSTAR

## CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
NYRSTAR	☒	☒	☒
NYRSTAR MYRA FALLS	☑	☒	☑

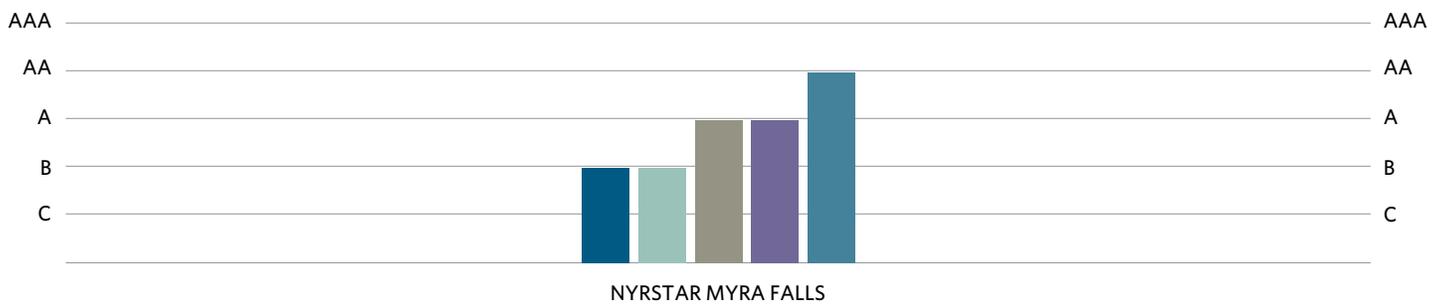
## ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



## SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- MONITORING AND REPORTING
- PLANNING, IMPLEMENTATION AND OPERATION
- PERFORMANCE
- TRAINING, BEHAVIOUR AND CULTURE



Self-assessed results; last external verification: 2012; next external verification: 2015.



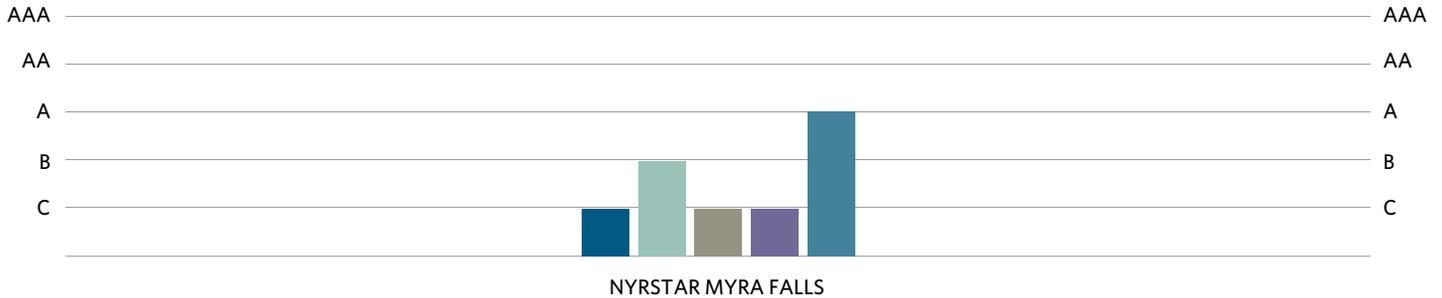
# MEASURING COMPANY PERFORMANCE

## NYRSTAR



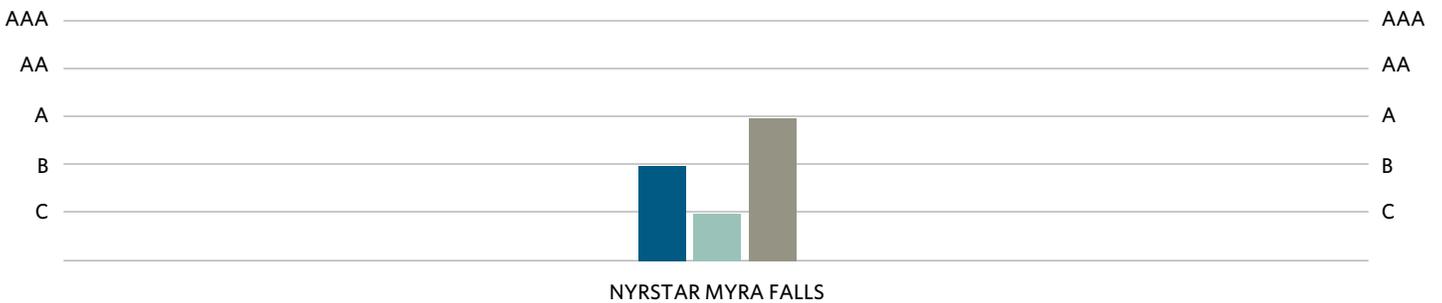
### TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
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- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



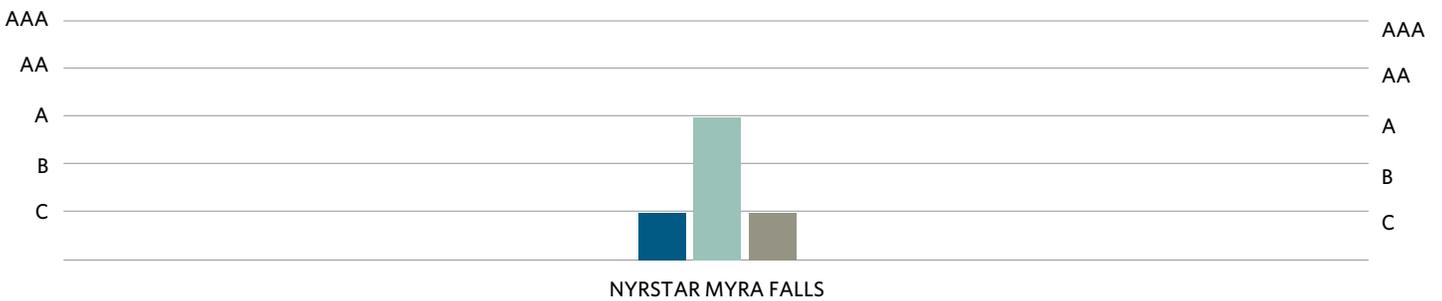
### BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



### ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



Self-assessed results; last external verification: 2012; next external verification: 2015.



# Rio Tinto

## COMPANY PROFILE - RIO TINTO

Rio Tinto is a leading international mining group headquartered in the United Kingdom, combining Rio Tinto plc, a London and New York Stock Exchange-listed company, and Rio Tinto Limited, which is listed on the Australian Securities Exchange.

Rio Tinto's business is finding, mining and processing mineral resources. Its major products are aluminum, copper, diamonds, thermal and metallurgical coal, uranium, gold, industrial minerals (borax, titanium dioxide and salt) and iron ore. Activities span the world and are strongly represented in Australia and North America, particularly in Canada; with significant businesses in Asia, Europe, Africa and South America.

In Canada, Rio Tinto operates 35 sites across seven jurisdictions and employs approximately 13,000 employees. Its investments have been focused on improving health and safety and environmental performance, advancing innovative technologies and supporting community development. The company's Canadian assets that currently report on TSM include the followings:

- The Iron Ore Company of Canada (IOC) is a leading Canadian producer of iron ore pellets and concentrate serving customers worldwide. IOC is a joint venture of Rio Tinto, Mitsubishi Corporation and Labrador Iron Ore Royalty Corporation. The company operates a mine, a concentrator and a pelletizing plant in Labrador City, Newfoundland and Labrador, as well as port facilities in Sept-Îles, Quebec. It also operates a 418-kilometre railroad that links the mine to the port. IOC maintains its commitment to environmental stewardship with programs such as tailings rehabilitation and mine dust suppression, as well as air quality monitoring. Working directly with the community is also an integral part of IOC's culture. In 2014, IOC successfully signed agreements with two Aboriginal partners in Labrador and undertook a significant project supporting the development of a regional strategy for Labrador West. The company is also continuing the environmental assessment process for its Wabush 3 Open Pit Mine Project, with the aim of creating a sustainable business that can support the community for the long term.
- The Diavik Diamond Mine in Canada's Northwest Territories is a joint venture between Rio Tinto (60%) and Dominion Diamond Corporation (40%). Diavik is recognized for its success in providing socio-economic benefits to local Aboriginal communities. In 2014, Rio Tinto and Dominion Diamond Corporation announced a \$350-million investment to develop a fourth ore body. In 2014, Diavik employed 948 people of whom 448 were northerners and 229 were Aboriginal. Diavik maintains a strong relationship with its community partners and is committed to supporting sustainable northern and Aboriginal development, with an objective



## COMPANY PROFILE **RIO TINTO**

of developing self-sufficient businesses. It does so through direct support for local businesses, and a strong commitment to training and innovation. Diavik has a world-class apprenticeship program and it opened Canada's first large-scale wind farm in the North in 2013. Diavik now operates the world's largest hybrid wind-diesel power facility at a remote mine site.

- Rio Tinto Fer et Titane, which operates an open pit ilmenite mine near Havre-Saint-Pierre, Quebec, is in the process of implementing TSM, but has not reported yet.

### Aboriginal and Community Outreach

Community engagement is an integral part of Rio Tinto's culture. IOC has been partnering with communities in Labrador West and Sept-Îles for more than five decades. Rio Tinto is a strong believer in developing and maintaining good relationships with local Aboriginal groups, which is reflected by its strong performance in Aboriginal and community outreach. IOC is proud of its accomplishments in 2014, including its life-of-mine agreement with the Innu Nation of Labrador and its Community Partnership Agreement with the NunatuKavut Community Council. Labrador City achieved a Level AAA across all indicators, and Sept-Îles attained a Level A or higher across all indicators except indicator 2 (effective COI engagement).

The Diavik Diamond Mine sees itself as a guest in a land where Aboriginal people assert a centuries-old presence. Over the last two years, Diavik renewed its formal participation agreements with all five of its community partners. These long-term renewals ensure northerners, including Aboriginal communities, continue to benefit from training, employment and business opportunities at Diavik.

Diavik has consistently reported a Level AAA under the Aboriginal and community outreach protocol since TSM first began.

### Crisis Management Planning

IOC's business resilience and recovery plan meets the intent of the TSM crisis management planning protocol, and is implemented at the company's three sites: corporate (Montreal), Labrador City and Sept-Îles. This year's assessment confirmed that IOC's crisis management system meets all the requirements of this protocol, while Diavik's management system meets all the criteria for indicators 1 and 3.

### Tailings Management

Responsible tailings management is a priority for Rio Tinto. Over the last few years, the company has demonstrated strong improvements in all of the indicators within this protocol and, for 2014, is reporting Level AAA performance across all indicators for its IOC operations. In 2010, IOC adopted the TSM Guiding Principles for tailings management, which helped strengthen the company's commitment to tailings management and encourages continuous improvements. Diavik has also maintained strong performance for tailings management over the years.

### Energy Use and GHG Emissions Management

Rio Tinto has maintained good levels of performance for its energy use and GHG emissions management practices. In 2014, Labrador City and Sept-Îles achieved a Level AA for two out of three indicators for this protocol. Diavik scored a Level A or higher for each indicator for the last two years.

In 2014, GHG emissions at Diavik were reduced by 5% at the same time that total ore mined and total ore processed increased by 10% and 8%, respectively. This was a significant accomplishment given Diavik's remote location in the subarctic. Utilizing Diavik's wind farm, as well as adjusting underground mine temperature and improving the energy efficiency of the underground haul truck fleet, were part of the many initiatives that led to a total reduction of 10,000 tonnes of CO<sub>2</sub> equivalent last year.

## COMPANY PROFILE **RIO TINTO**

Rio Tinto remains committed to responsible energy management and continues to explore opportunities for improved performance in this area.

### Safety and Health

A priority for all Rio Tinto operations is the safety and health of its employees. The company has undertaken several initiatives to help foster education and awareness. The company hosts workshops for union leaders, design engineers and general managers, conducts team-based safety talks, acknowledges safety-conscious acts and encourages employee-driven innovation. Rio Tinto's commitment to safety is reflected in this year's TSM results, with strong performance across the four indicators.

### Biodiversity Conservation Management

Rio Tinto's corporate biodiversity strategy governs IOC and Diavik's biodiversity management systems. The operations have focused their attention on implementing Rio Tinto's strategy and furthering understanding of the requirements of this TSM protocol. Diavik and Dominion Diamond Corporation were jointly awarded the 2015 TSM Environmental Excellence Award for their grizzly bear monitoring program in the Northwest Territories

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.RIOTINTO.COM](http://WWW.RIOTINTO.COM)**



**MARK RODGERS, VP OPERATIONS, IOC, OFFICIALLY OPENS THE A.P. LOW PRIMARY SCHOOL GREENSPACE IN LABRADOR CITY.**

# MEASURING COMPANY PERFORMANCE

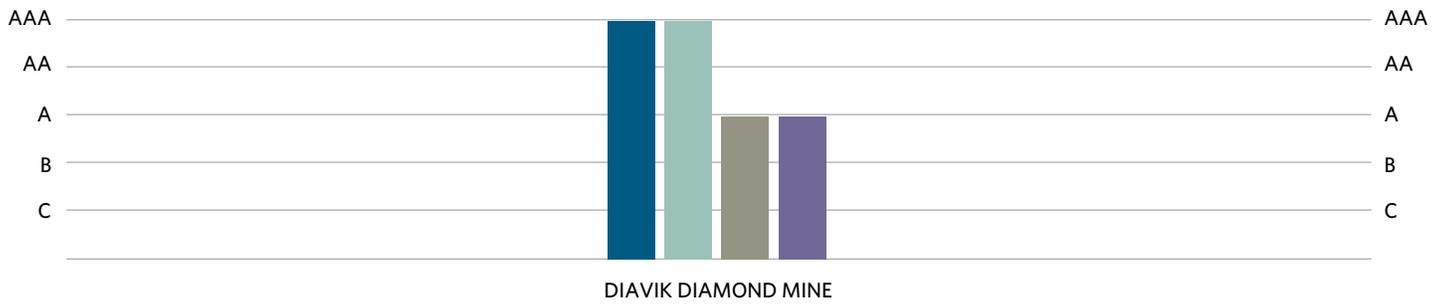
## DIAVIK DIAMOND MINE

### CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
DIAVIK DIAMOND MINE	✔	✘	✔

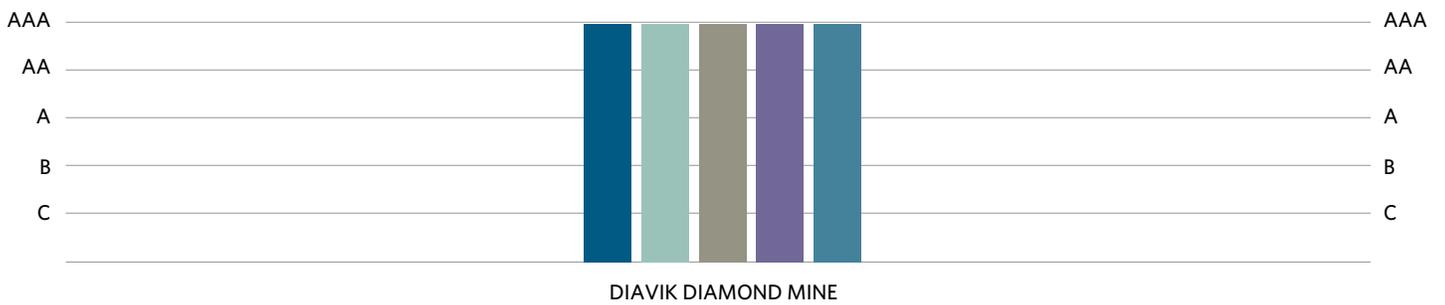
### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



### SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- PLANNING, IMPLEMENTATION AND OPERATION
- TRAINING, BEHAVIOUR AND CULTURE
- MONITORING AND REPORTING
- PERFORMANCE



Self-assessed results; last external verification: 2013; next external verification: 2015.



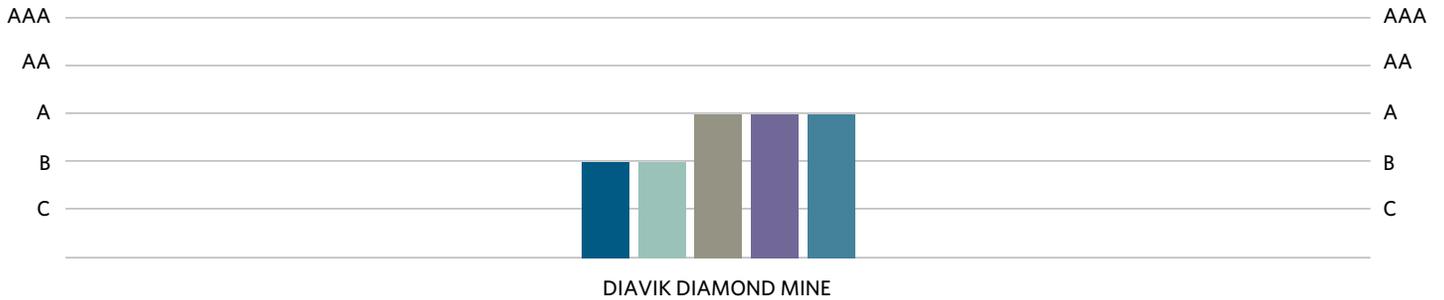
# MEASURING COMPANY PERFORMANCE

## DIAVIK DIAMOND MINE



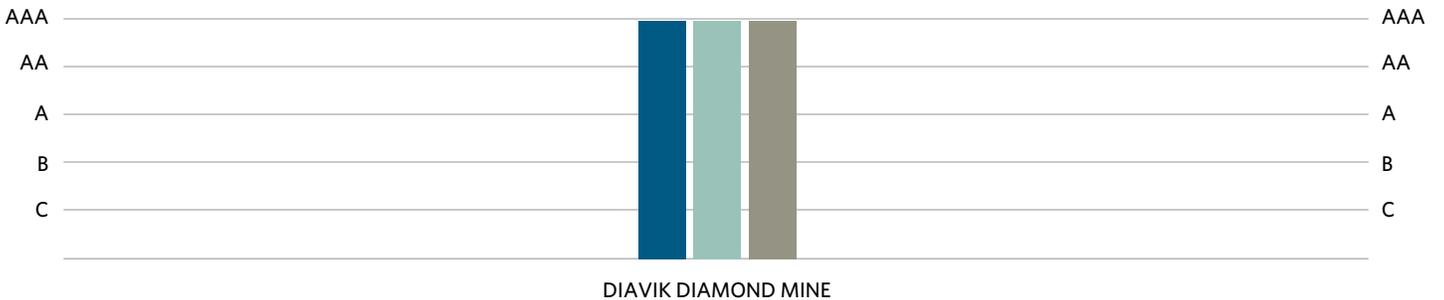
### TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



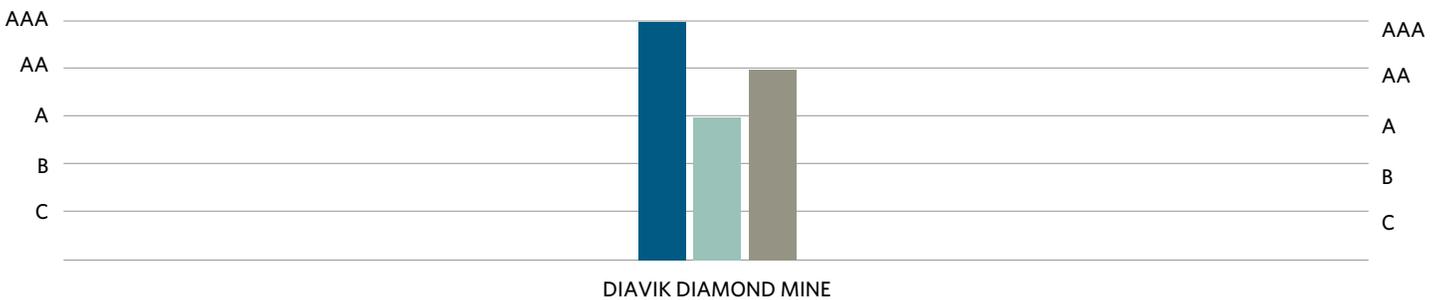
### BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



### ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



Self-assessed results; last external verification: 2013; next external verification: 2015.



# MEASURING COMPANY PERFORMANCE IRON ORE COMPANY OF CANADA

## CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
IRON ORE COMPANY OF CANADA	✓	✓	✓
LABRADOR CITY	✓	✓	✓
SEPT-ÎLES	✓	✓	✓

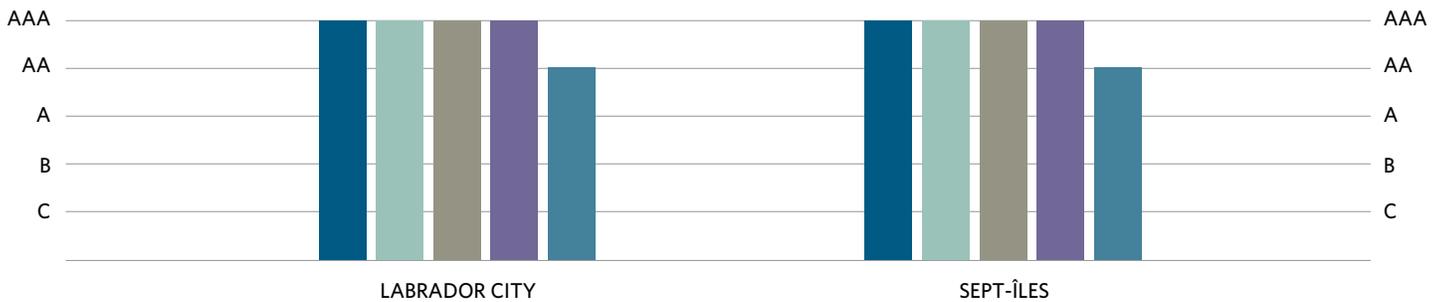
## ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



## SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- TRAINING, BEHAVIOUR AND CULTURE
- PLANNING, IMPLEMENTATION AND OPERATION
- MONITORING AND REPORTING
- PERFORMANCE



Self-assessed results; last external verification: 2013; next external verification: 2015.



# MEASURING COMPANY PERFORMANCE IRON ORE COMPANY OF CANADA



## TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



## BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



## ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



Self-assessed results; last external verification: 2013; next external verification: 2015.





## COMPANY PROFILE - SHELL CANADA ENERGY

Shell Canada Energy (Shell) operates the Muskeg River and the Jackpine mines, located 75 kilometres north of Fort McMurray, Alberta, on behalf of the owners of the Athabasca Oil Sands Project (AOSP): Shell Canada Limited (60%), Chevron Canada Limited (20%) and Marathon Oil Sands LP (20%).

Shell's commitment to sustainability is embedded in the company's business principles. The company is committed to working in ways that mitigate environmental and social impacts, and create positive benefits for the communities where it operates.

A good working relationship with local communities is extremely important to Shell. The average life cycle of an oil sands project is typically 40 years and, therefore, the company has a long-term interest in local communities. Shell actively seeks input from those who live near its facilities and from those who take an active interest in Shell's oil sands business.

In late 2012, Shell announced its second-largest social investment ever in Canada — Shell Place at MacDonald Island. The facility will include an outdoor performance stadium, a shared-space community centre, and a tournament centre, among many other features thanks to this \$2.5 million partnership with MacDonald Island Park. Since 2003, Shell has donated more than \$15 million to 170 organizations throughout the region on behalf of its Muskeg River and Jackpine mine operations.

### Relationships with Aboriginal Communities

Shell has been working closely with Aboriginal people in Canada for many years, whether by direct consultation on projects and operations, ongoing interaction and collaboration through industry relations committees, or through formal engagement with elders and band leaders.

The company has successfully established agreements with several local First Nations and Métis communities for both current operations and planned future developments. Shell values traditional environmental knowledge, and incorporates these perspectives and input into development processes.

Shell also provides opportunities to qualified local businesses and residents, with an emphasis on ensuring Aboriginal businesses are able to participate in the contracting and employment processes. Since 2005, the AOSP has invested over \$1.7 billion with Aboriginal-owned businesses and contractors. They provide a broad array of



## COMPANY PROFILE SHELL CANADA ENERGY

products and services to Shell's operations, ranging from general labour to technical expertise. Shell has also been working with entrepreneurs to help them grow their businesses in order to increase capacity and encourage diversity. The company also works with its largest non-Aboriginal suppliers to encourage them to provide opportunities for Aboriginal people and vendors.

### Social Investments in Communities

Shell's social investment activities are themed around science, education, innovation and business skills. In 2014, Shell made \$3.5 million in contributions on behalf of the AOSP and its in-situ operations.

One of Shell's goals is to help to increase high school completion rates and boost the number of Aboriginal students pursuing post-secondary education. For 26 years, Shell has supported Indspire, an Indigenous-led charitable organization that invests in the education of Indigenous youth in Canada. Shell's partnership with Indspire began with investments in Aboriginal post-secondary education, but has expanded to investments in Kindergarten to Grade 12 programs, post-secondary scholarships and events that recognize Aboriginal leaders. In 2014, Shell was proud to be the founding sponsor of Indspire's *Careers in Oil and Gas*, a new *Industry in the Classroom* seminar designed to increase the awareness of careers available in the sector.

In the summer of 2015, Shell will be part of the inaugural celebrations for the opening of Shell Place at MacDonald Island in Fort McMurray. The facility includes an outdoor performance stadium, shared-space community centre, tournament centre, and many other features. Shell announced its investment, a \$2.5 million partnership with MacDonald Island Park, in 2012.

Shell has invested a total of \$600,000 in support of facilities and programming in the Fort Chipewyan community that support culture retention and community building. This includes \$100,000 in support of a program with the Bicentennial Museum that invited community members to participate in culturally significant activities such as sewing, beading, outdoor cooking and hide preparation. Shell also invested \$500,000 in the Fort Chipewyan Elders Care Facility, a 12-bed facility that features a cultural activity area to support the traditional needs of the residents, including a significant focus on inter-generational interaction

### Environmental Management

Shell takes a "best in class" approach to environmental management. In 2004, the Muskeg River Mine was certified to the ISO 14001:1996 standard – the first oil sands operation in the world to attain this international standard. The facility has since renewed its three-year certificate under the ISO 14001:2004 standard three times, most recently in 2013, which extended the scope of the certification to include the Jackpine Mine. This ISO standard, though voluntary, is externally audited and is recognized as the top international standard for environmental management systems (EMS).

Proven management systems allow Shell to meet its environmental goals even as the company grows. Shell pursues responsible mining by maximizing its use of wastewater, managing the cumulative effects of oil sands development and applying new technology.

Shell was one of the founding members of Canada's Oil Sands Innovation Alliance (COSIA). COSIA is a first-of-its-kind alliance of oil sands producers who collaborate on innovation to drive accelerated and long-term environmental performance improvement through technology-sharing and joint-industry initiatives. Shell's own internal Environmental Performance Improvement (EPI) program is structured to mirror the COSIA performance focus areas, and the delivery model is embedded in its daily operations. Since implementing EPI in 2012, the company continues to make progress in achieving its goals with respect to land (including tailings), water and air.

## COMPANY PROFILE SHELL CANADA ENERGY

Shell's view is that climate change is one of the most pressing challenges our society faces today. While fossil fuels will remain the backbone of our energy supply for decades to come, clear and direct action must be taken to diversify the world's energy supply, increase the use of cleaner fuels and improve efficiency. From increasing energy efficiency in its operations to advancing fuel technology to educating customers on ways to consume fuel more efficiently, Shell is focused on reducing GHGs at all stages of the energy life cycle – from the mine to the motorist.

In 2015, Shell and the AOSP joint venture owners, Chevron and Marathon, with support from both the Alberta and Canadian government, will start up the Quest carbon capture and storage (CCS) facility, the world's first commercial-scale application of CCS in an oil sands facility. Quest will capture approximately one million tonnes of CO<sub>2</sub> annually from Shell's Scotford Upgrader and will store it safely about two kilometres underground. Removing this much CO<sub>2</sub> from the atmosphere annually is the equivalent of taking about 250,000 cars off the road each year. In addition, Shell is sharing the knowledge and expertise it has gained through the development of the Quest facility with COSIA and with others around the world to encourage more rapid deployment of CCS in more facilities globally.

### TSM Performance

Shell continues to maintain high standards in the TSM performance protocols of crisis management planning and Aboriginal and community outreach, with management programs in place that are reviewed, tested and documented. The company is working extensively on community of interest engagement and dialogue. Shell informs communities about its environmental performance through its annual Oil Sands Performance Report.

Shell's tailings management initiatives continued in 2014, with the company focusing on advancing technologies to treat fluid fine tailings. In 2014, Shell completed a successful pilot of a tailings centrifuge, which is being expanded into commercial operations in 2015. The company continues to see success with its atmospheric fines drying process, which can reduce the time needed to dry tailings from years to weeks. Since 2005, Shell has spent more than \$400 million on tailings technology and research.

### Multi-Stakeholder Membership

Ongoing, meaningful involvement with multi-stakeholder groups is an important part of Shell's environmental management strategy. In addition to MAC, Shell is an active member of the following: the Alberta Environmental Monitoring, Evaluation and Reporting Agency; the Oil Sands Community Alliance; the Oil Sands Developers Group; the Cumulative Environmental Management Association; the Wood Buffalo Environmental Association; Joint Oil Sands Monitoring (JOSM); the Canadian Association of Petroleum Producers; COSIA; and the Integrated CO<sub>2</sub> Network.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.SHELL.CA](http://WWW.SHELL.CA)**

# MEASURING COMPANY PERFORMANCE

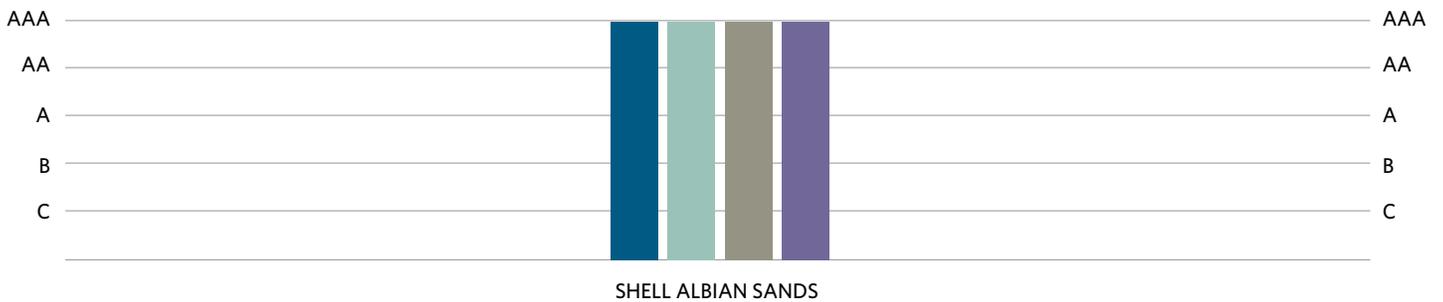
## SHELL CANADA ENERGY

### CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
SHELL CANADA ENERGY	☑	☑	☑
SHELL ALBIAN SANDS	☑	☑	☑

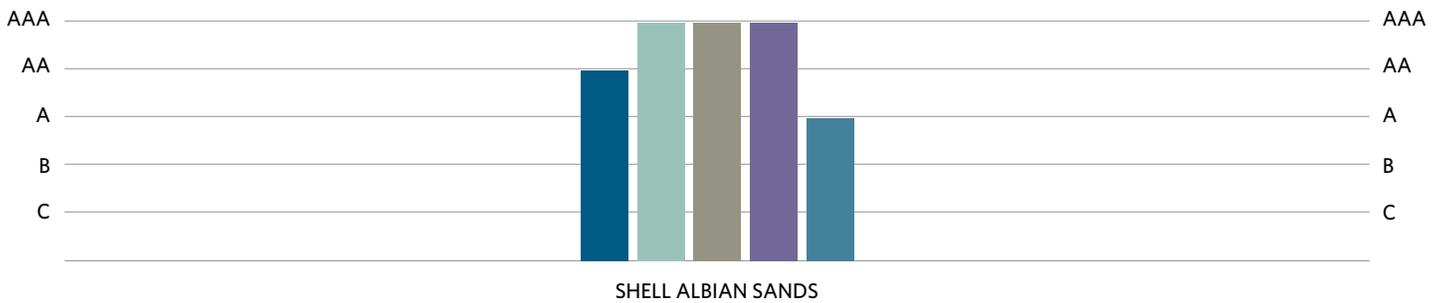
### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



### SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- TRAINING, BEHAVIOUR AND CULTURE
- PLANNING, IMPLEMENTATION AND OPERATION
- MONITORING AND REPORTING
- PERFORMANCE



Self-assessed results; last external verification: 2012; next external verification: 2015.



# MEASURING COMPANY PERFORMANCE

## SHELL CANADA ENERGY



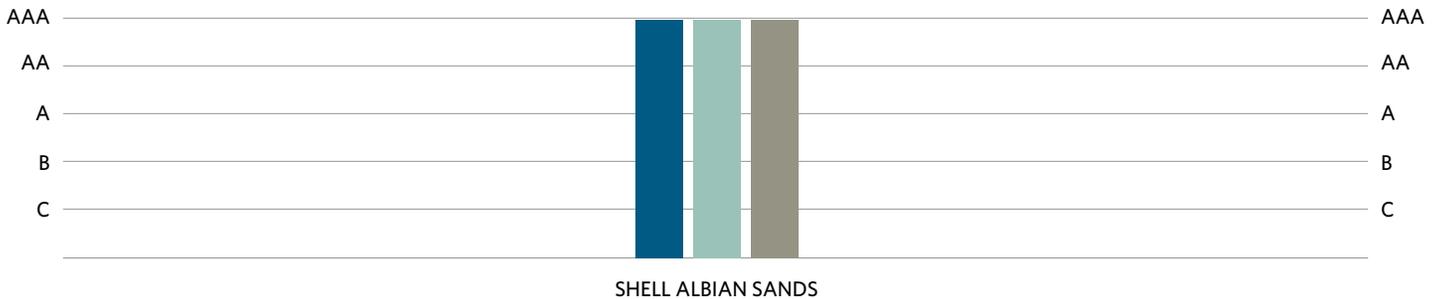
### TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



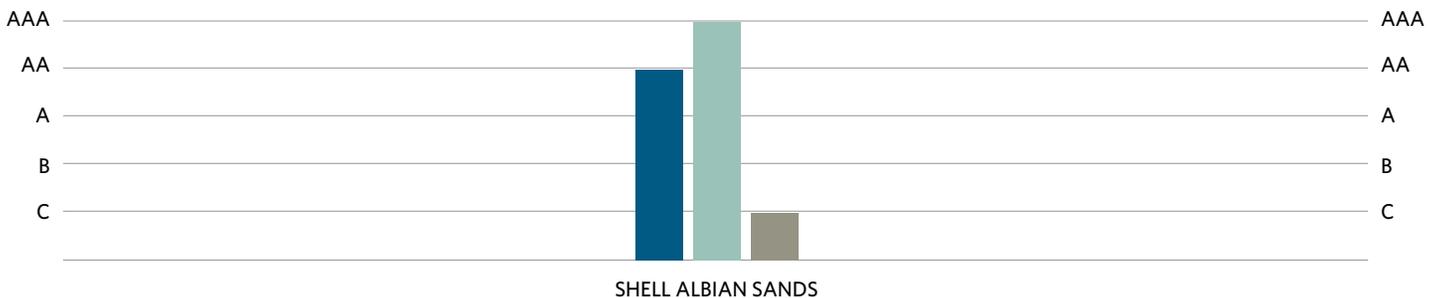
### BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



### ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



Self-assessed results; last external verification: 2012; next external verification: 2015.





## COMPANY PROFILE - SUNCOR ENERGY

Suncor Energy recovers bitumen from oil sands near Fort McMurray, Alberta, and upgrades it to refinery-ready feedstock and diesel fuel. With production capacity of about 300,000 barrels per day and enough reserves to sustain production for the next 50 years, Suncor remains a leader in oil sands development.

### Crisis Management Planning

Suncor completed all requirements for this protocol and received a "yes" score for all three indicators.

### Energy Use and GHG Emissions Management

Although the company received a Level AAA for the energy use and GHG emissions management systems indicator, it did not meet the requirements for reporting under indicator 2, energy use and GHG emissions reporting systems, and received a Level B rating. As energy and GHG emissions performance targets were not met in 2014, Suncor received a Level B for this indicator.

### Tailings Management

Oil sands tailings ponds have come under increased public scrutiny in the past few years. Suncor has worked hard in this area to ensure compliance with all performance indicators, and has externally verified its tailings management protocol results. Suncor achieved a Level AA for all indicators. Work continues in this area to ensure that the company can maintain a high level of compliance in the future.

### Aboriginal and Community Engagement

Suncor has consistently performed well in this area as external outreach has always been a key part of maintaining its social licence to operate. The company regularly reviews its communities of interest (COI), including several Aboriginal communities, and its interaction with them. COI have an important say in how the company conducts its business. Moreover, Suncor's success depends on earning the trust and confidence of residents in the communities where it operates.

Suncor has a stakeholder relations policy that outlines the company's commitment to collaboration, transparency and respect for all views. The policy guides Suncor as it develops long-term relationships with those affected by its business, including employees, community members, shareholders, customers, organizations and governments.

### Safety and Health

Safety is a key aspect of Suncor's operations. The company's safety performance met all the requirements of a Level AAA rating for indicators 1 through 4 and a Level AA for indicator 5, performance.



**COMPANY PROFILE** SUNCOR ENERGY**Biodiversity Conservation Management**

Although biodiversity conservation management is a key part of Suncor's closure plans, it has not formalized reporting and communications around biodiversity. Suncor continues to explore ways of increasing biodiversity conservation reporting and communications.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.SUNCOR.COM](http://WWW.SUNCOR.COM)**



**RECLAMATION ACTIVITIES AT SUNCOR'S OIL SANDS OPERATION NEAR FORT MCMURRAY, ALBERTA.**

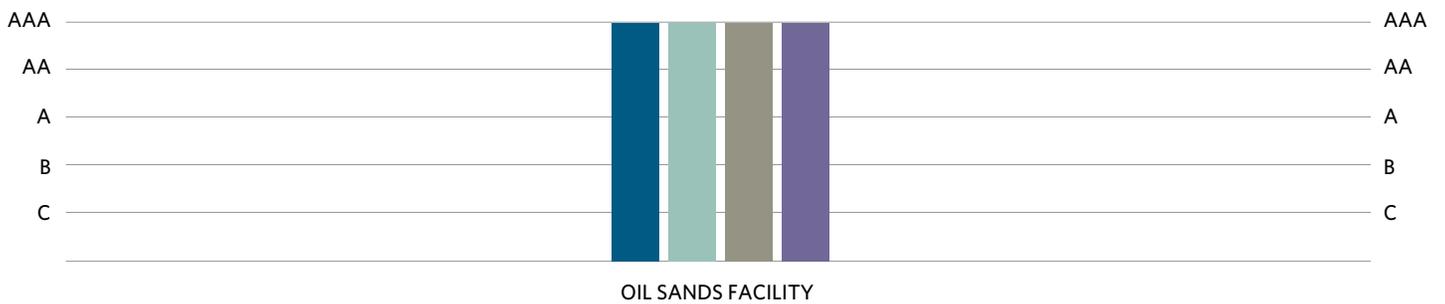
# MEASURING COMPANY PERFORMANCE SUNCOR ENERGY

## CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
OIL SANDS FACILITY	✔	✔	✔

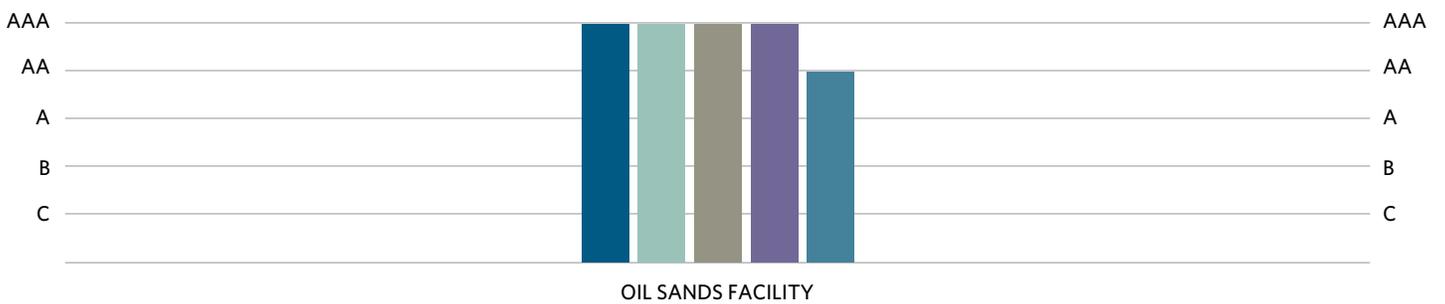
## ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



## SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- MONITORING AND REPORTING
- PLANNING, IMPLEMENTATION AND OPERATION
- PERFORMANCE
- TRAINING, BEHAVIOUR AND CULTURE



Results not externally verified, except for Tailings Management. Last external verification: 2011; next external verification: 2015.



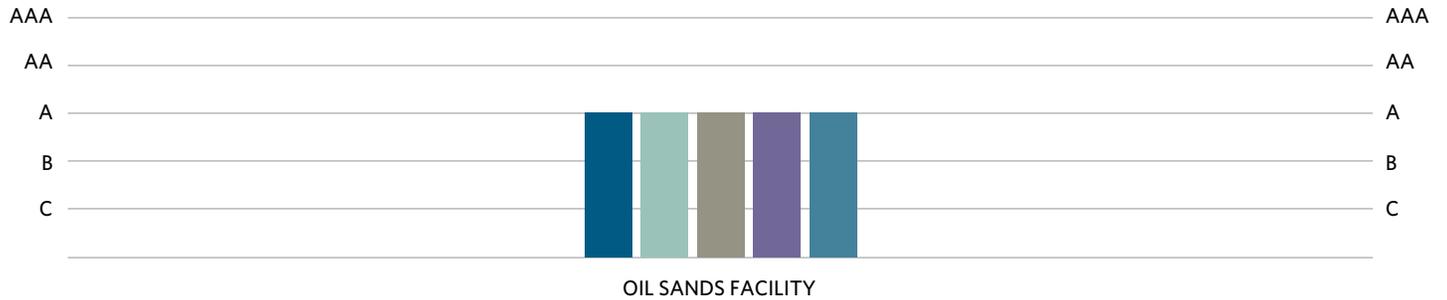
# MEASURING COMPANY PERFORMANCE

## SUNCOR ENERGY

Externally Verified

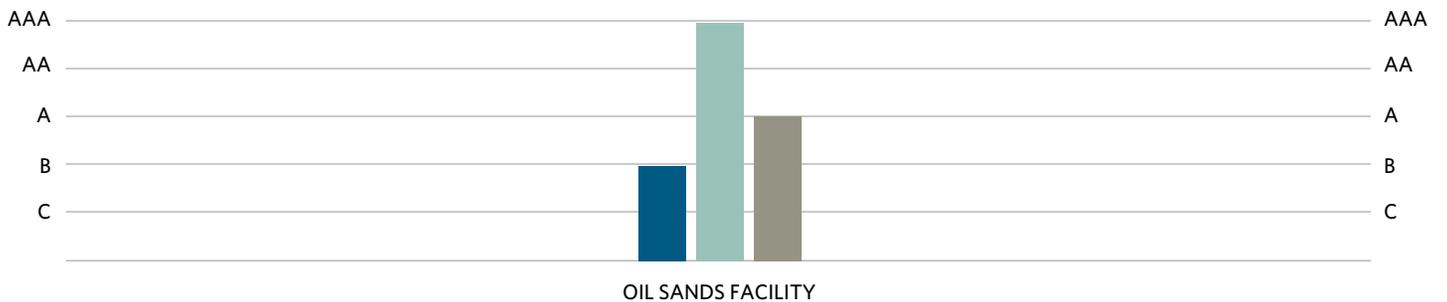
### TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



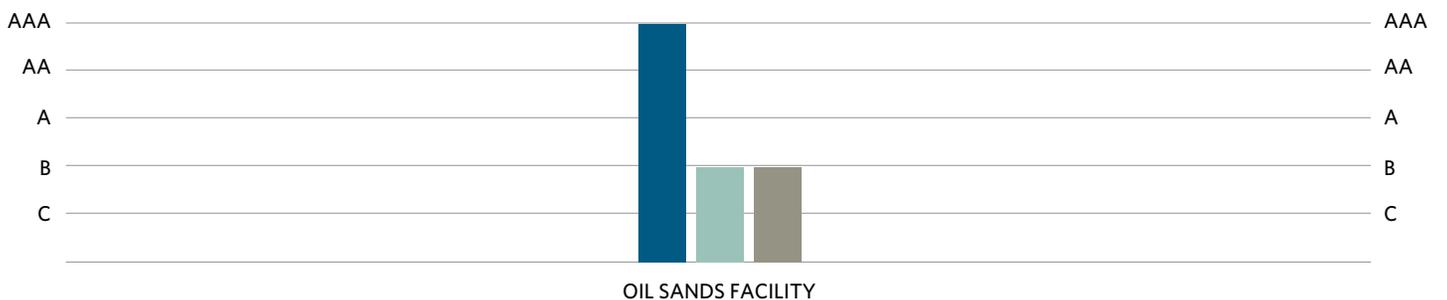
### BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



### ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



Results not externally verified, except for Tailings Management. Last external verification: 2011; next external verification: 2015.





## COMPANY PROFILE - SYNCRUDE CANADA LTD.

Syncrude is one of the largest operators in Canada's growing oil sands industry, with over 50 years of responsible operations and ongoing innovation. Based in Fort McMurray, Alberta, and with a large research and development facility in Edmonton, Syncrude is known for pioneering many of the technologies used today in the industry, including an expanding suite of techniques to improve environmental and economic performance.

Syncrude recently began operation of a \$1.6 billion project to reduce air emissions and has invested about \$3 billion in projects to help reclaim tailings into healthy, productive landscapes. In addition, the company has permanently reclaimed over 3,300 hectares of former open-pit mining areas. Syncrude is also a recognized leader in Aboriginal relations, as evidenced by its cumulative procurement of over \$2.2 billion from local Aboriginal companies and its status as one of the country's largest employers of Aboriginal people.

Current production capacity is 350,000 barrels per day of high-quality light, low sulphur crude oil, and cumulative production now exceeds 2.4 billion barrels. Syncrude annually contributes more than \$6 billion to Canada's economy through the payment of wages, royalties and taxes, and through procurement of goods and services.

Syncrude's commitment to superior environmental, health and safety performance, and excellence in community relations has been strengthened by its participation in TSM. Performance highlights for 2014 include:

- Level A ratings were achieved in all areas of tailings management. Syncrude's focus includes regular updates to its operation, maintenance and surveillance (OMS) manuals for all tailings facilities. Syncrude also conducts regular monitoring of all dams on its site, holds external technical reviews and ensures emergency plans are in place to respond to incidents involving these facilities.
- Syncrude's energy and GHG emissions management and reporting systems are fully implemented and effectively integrated into its operations. As a result, Syncrude achieved Level AAA ratings for these indicators. However, intensity targets for 2014 were not met. This was the result of reliability issues and lower than anticipated production, which affected overall performance.
- Level AAA ratings were achieved again for Aboriginal and community outreach. An executive and management-level group oversees the strategic plan of Syncrude's Aboriginal engagement, and community of interest (COI) input is sought to drive future performance. Syncrude has been reaccredited at Gold Level status in



**COMPANY PROFILE****SYNCRUDE CANADA LTD.**

the Progressive Aboriginal Relations program of the Canadian Council for Aboriginal Business five consecutive times. In addition, through a community-oriented philosophy, the company works extensively with regional stakeholders to manage the social and environmental effects of oil sands development. This includes numerous multi-party organizations and industry associations that deal with local socio-economic impacts and policy issues.

- Syncrude scored “yes” in all areas of crisis management and response. The company regularly conducts emergency response simulations, including desktop and site-wide simulations, to ensure all personnel are properly trained and tested. Pre-plans exist for all medium- and high-level risks, and approved company spokespeople are identified and trained.
- Level AAA ratings were achieved for biodiversity conservation management. Syncrude demonstrated continued focus on improving evaluation and reporting programs, as well as employee and COI communications. Significant effort continues on returning former mining areas back to nature, including recent completion of the world’s first fen wetland restoration project constructed on a foundation of reclaimed tailings.
- Syncrude is committed to protecting and promoting the safety and well-being of employees, contractors, communities and the environment. This is evident in the reported results of Level AAA ratings across four of the five safety and health indicators, and by improved safety performance.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.SYNCRUDE.CA](http://WWW.SYNCRUDE.CA)**



**SYNCRUDE'S MILDRED LAKE MINE REPLACEMENT PROJECT.**

# MEASURING COMPANY PERFORMANCE SYNCRUDE CANADA LTD.

## CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
SYNCRUDE CANADA LTD.	✓	✓	✓

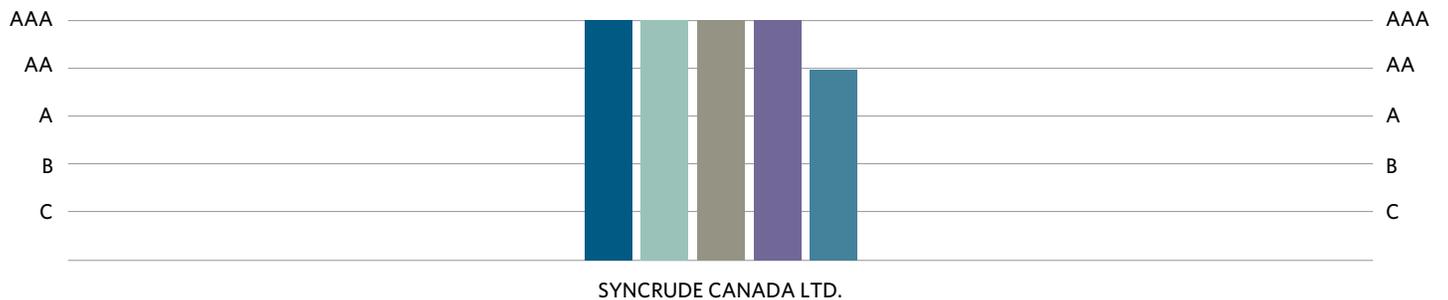
## ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



## SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- TRAINING, BEHAVIOUR AND CULTURE
- PLANNING, IMPLEMENTATION AND OPERATION
- MONITORING AND REPORTING
- PERFORMANCE



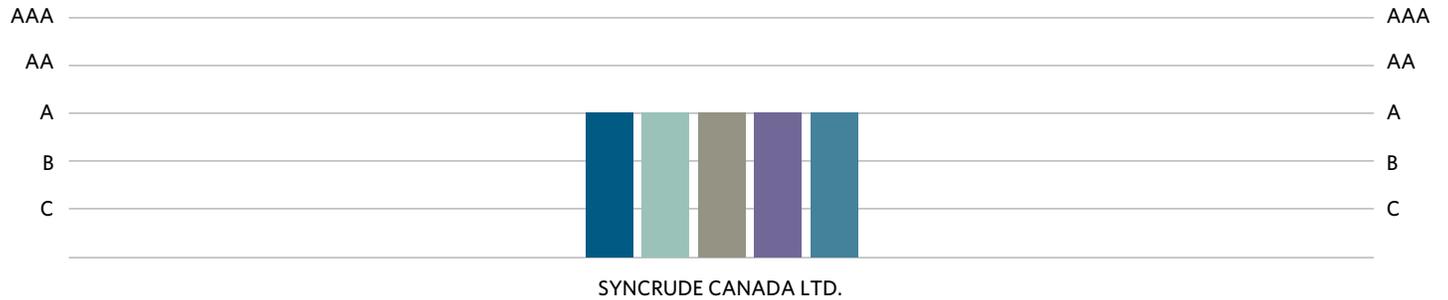
Self-assessed results; last external verification: 2013; next external verification: 2016.



# MEASURING COMPANY PERFORMANCE SYNCRUDE CANADA LTD.

## TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



## BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



## ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



Self-assessed results; last external verification: 2013; next external verification: 2016.





## COMPANY PROFILE - TASEKO MINES LIMITED

Taseko is a mining company focused on the operation and development of mines in North America. Headquartered in Vancouver, Canada, Taseko is the owner (75%) and operator of the Gibraltar Mine, the second largest open-pit copper-molybdenum mine in Canada. Taseko's Aley Niobium Project in northern BC, Florence Copper Project in Arizona, and New Prosperity Gold-Copper Project in BC are all advanced-staged projects that provide the company with a diverse commodity pipeline.

Taseko is committed to continual improvement in the protection of human health and stewardship of the natural environment. To fulfill this commitment, Taseko adheres to corporate policies that guide the conduct of all its employees in the areas of environment, health and safety, and Aboriginal relations. Additionally, the Gibraltar Mine is committed to meeting the requirements of MAC's tailings guides and has an environmental management system (EMS) in place.

For the last three years, Taseko has self-assessed its annual TSM performance as a MAC member. In 2015, Taseko had its first external verification. The verifier reported that, for the period ending December 31, 2014, all indicators conform with Taseko's self-assessment results, with the exception of two indicators: one in biodiversity conservation management and one in energy use and GHG emissions management. In 2015, Gibraltar will address its performance in these two areas with a target of achieving a Level A or better for both.

**Crisis Management** systems met all requirements of the TSM protocol at both the corporate office and the Gibraltar facility. In 2014, the crisis management team in the corporate office completed a full simulation of Gibraltar's crisis management plans, which involved a hypothetical tailings dam breach at the mine.

**Energy Use and GHG Emissions Management** performance proved to be excellent in 2014 and exceeded the performance target for energy and GHG savings by 20%, with several projects being completed. The mine achieved a Level A for energy and GHG emissions performance targets as well as for energy and GHG reporting systems. Gibraltar was externally verified at a Level B for the energy use and GHG emissions management systems indicator. The mine has elements of a formal energy and GHG management system in place, including the establishment of an energy management team, with assigned roles and responsibilities, formal audits, and tracking of energy use and emissions. Gibraltar provides energy and GHG awareness using computer-based training (CBT) for all employees, and has a truck-idling reduction campaign. For indicator 1, Gibraltar will be making improvements in 2015 to ensure that energy data is integrated into operator actions for energy-intensive processes, and that additional training will be provided to key personnel.



**COMPANY PROFILE****TASEKO MINES LIMITED**

**Responsible Tailings Management** is a key priority for the Gibraltar Mine and, in 2014, it achieved a Level AA for all five indicators. Internal audits were conducted using audit protocols following the tailings guide and for one indicator, the MAC's *Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities*. Taseko conducted community of interest (COI) engagement on tailings management throughout the year as evidenced by its excellent marks for the Aboriginal and community outreach protocol.

**Aboriginal and Community Outreach** was exceptional in 2014 with three Level AAA ratings achieved for COI identification, effective engagement and dialogue, and response mechanisms. An advanced StakeTracker™ system, implemented in 2013, has helped facilitate COI identification and record-keeping for all public communications and complaints. Taseko and Gibraltar used the system to record consultation and follow-up that occurred with communities during the year. In the area of reporting, StakeTracker™, as well as the company's monthly Copper Connector newsletter, have allowed the site to track and document responses to COI concerns with public reporting through the website and social media, resulting in Level A score. The company is committed to continuous improvement in all aspects of its operation, including its engagement with COI and its work with First Nation communities on educational initiatives and training programs in the Cariboo-Chilcotin region.

**Biodiversity Conservation Management** is a key component of activity at the Gibraltar Mine through mine reclamation programs. Taseko's corporate biological diversity policy and Gibraltar's biological diversity conservation plan capture existing and ongoing programs implemented at the mine, as well as new initiatives supporting conservation. The company is working on establishing formal linkages between the plan and the assessment of significant biodiversity targets, which should improve its score for the second indicator in 2015.

**Safety and Health** has always been a high-level commitment for Taseko and the Gibraltar Mine, with the credo that: *Nothing is more important to the Company than the safety, health and well-being of our workers and their families. Taseko is committed to operational practices that result in improved efficiencies, safety performance and occupational health.* This is evidenced by presentation of the John Ash Award for safety performance in 2014 by the BC Ministry of Energy and Mines. The award recognizes a mine operating in British Columbia that has achieved the lowest lost time accident frequency for one million worker hours. Gibraltar was recognized for achieving more than 1.7 million worker hours and zero lost time incidents. The verified marks for this protocol are at a Level A across all five indicators. The Taseko Health and Safety Policy and the 2014 lost time statistics are publicly available on the Taseko website.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.TASEKOMINES.COM](http://WWW.TASEKOMINES.COM)**



# MEASURING COMPANY PERFORMANCE

## TASEKO MINES LIMITED



### CRISIS MANAGEMENT PLANNING ASSESSMENT

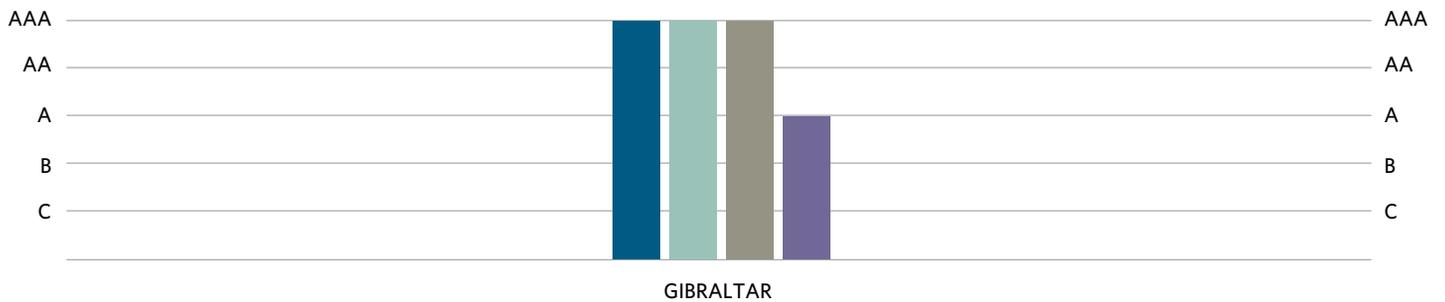
Externally Verified

FACILITY	PREPAREDNESS	REVIEW	TRAINING
TASEKO MINES LIMITED	☑	☑	☑
GIBRALTAR	☑	☑	☑



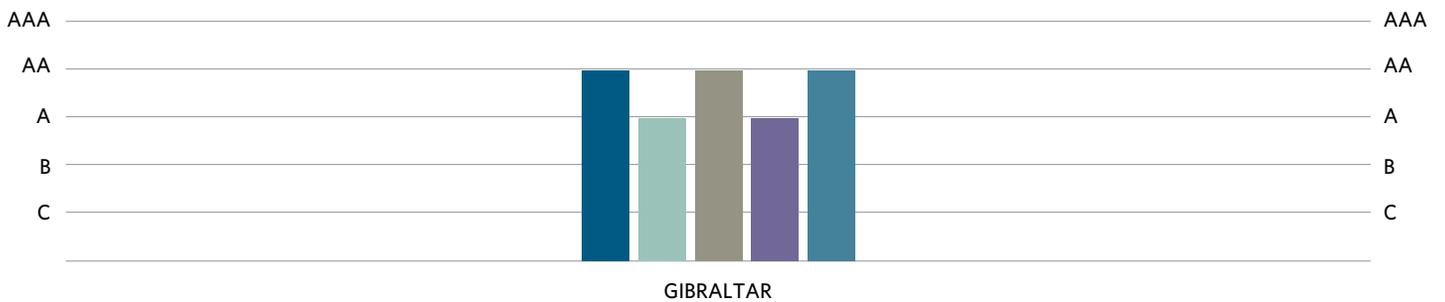
### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



### SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- MONITORING AND REPORTING
- PLANNING, IMPLEMENTATION AND OPERATION
- PERFORMANCE
- TRAINING, BEHAVIOUR AND CULTURE



# MEASURING COMPANY PERFORMANCE

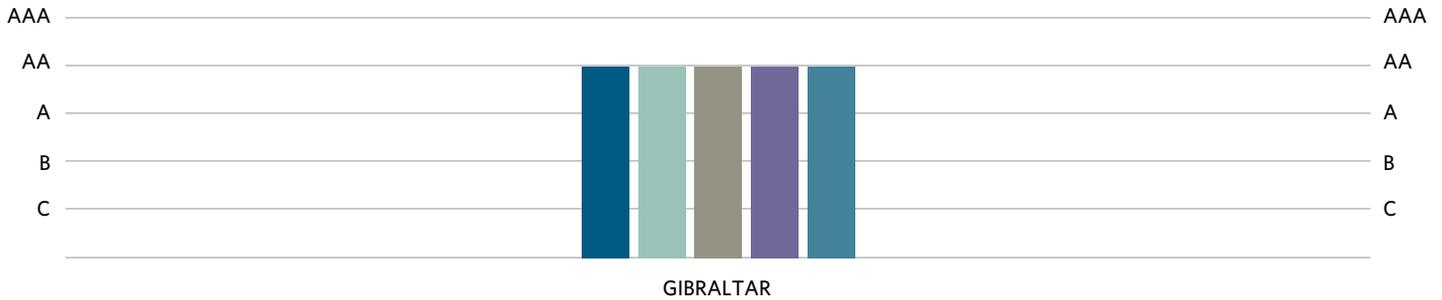
## TASEKO MINES LIMITED

Externally Verified



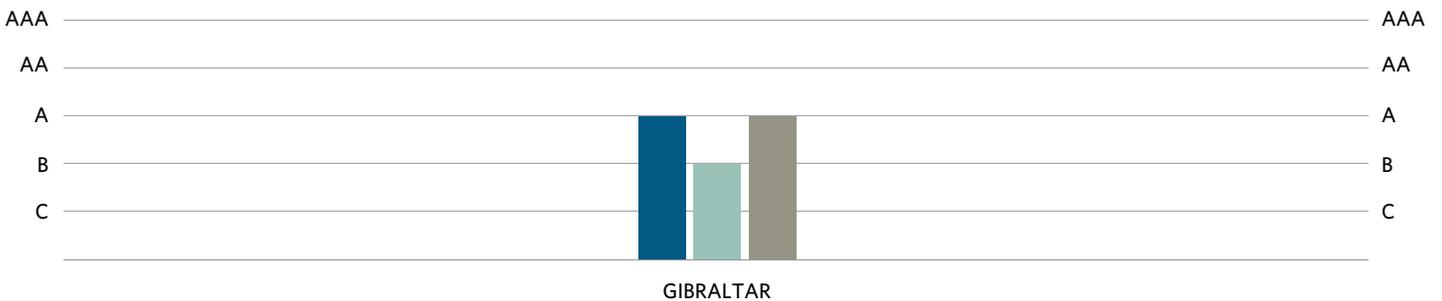
### TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



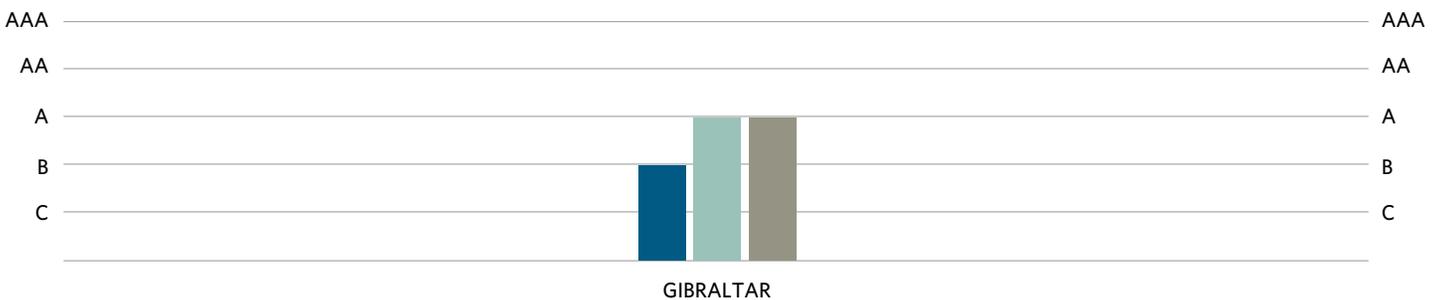
### BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



### ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



# Teck

## COMPANY PROFILE - TECK RESOURCES LIMITED

Teck is a diversified resource company committed to responsible mining and mineral development, with business units focused on copper, steelmaking coal, zinc and energy. Headquartered in Vancouver, British Columbia, Teck owns or has an interest in 13 mines in North and South America, as well as one large metallurgical complex and a wind power facility in Canada. Teck has expertise across a wide range of activities related to exploration, development, mining and minerals processing, smelting and refining, safety, environmental protection, materials stewardship, recycling and research.

### TSM Results

All of Teck's operations apply TSM, and all Canadian operations publicly report their TSM results. These include Duck Pond in Newfoundland, Highland Valley Copper and Trail in British Columbia, and the company's six steelmaking coal operations in British Columbia and Alberta: Cardinal River, Coal Mountain, Elkview, Fording River, Greenhills and Line Creek.

In 2014, two of Teck's steelmaking coal operations, Coal Mountain operations and Line Creek operations, underwent third-party verification. Teck is pleased to report that the verifications confirmed continued improvements, and that Line Creek operations near Sparwood, British Columbia, qualified for a TSM Leadership Award. In addition, Teck's corporate office was verified against the corporate-level requirements for the crisis management planning protocol and achieved a "yes" for all indicators.

Teck's overall results for 2014 were strong, and the company achieved high levels of performance across all six TSM protocols. All nine of Teck's Canadian operations achieved a Level AAA for all indicators in the Aboriginal and community outreach protocol.

Through its Sustainability Strategy, Teck has identified six areas that represent the biggest challenges and opportunities for its work in sustainability: community, people, water, biodiversity, energy, and materials stewardship. Within each area, Teck has set short-term and long-term goals and targets to continually enhance sustainability performance and assess progress, which the company reports in its annual sustainability report.

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.TECK.COM](http://WWW.TECK.COM)**



# MEASURING COMPANY PERFORMANCE

## TECK RESOURCES LIMITED\*



### CRISIS MANAGEMENT PLANNING ASSESSMENT

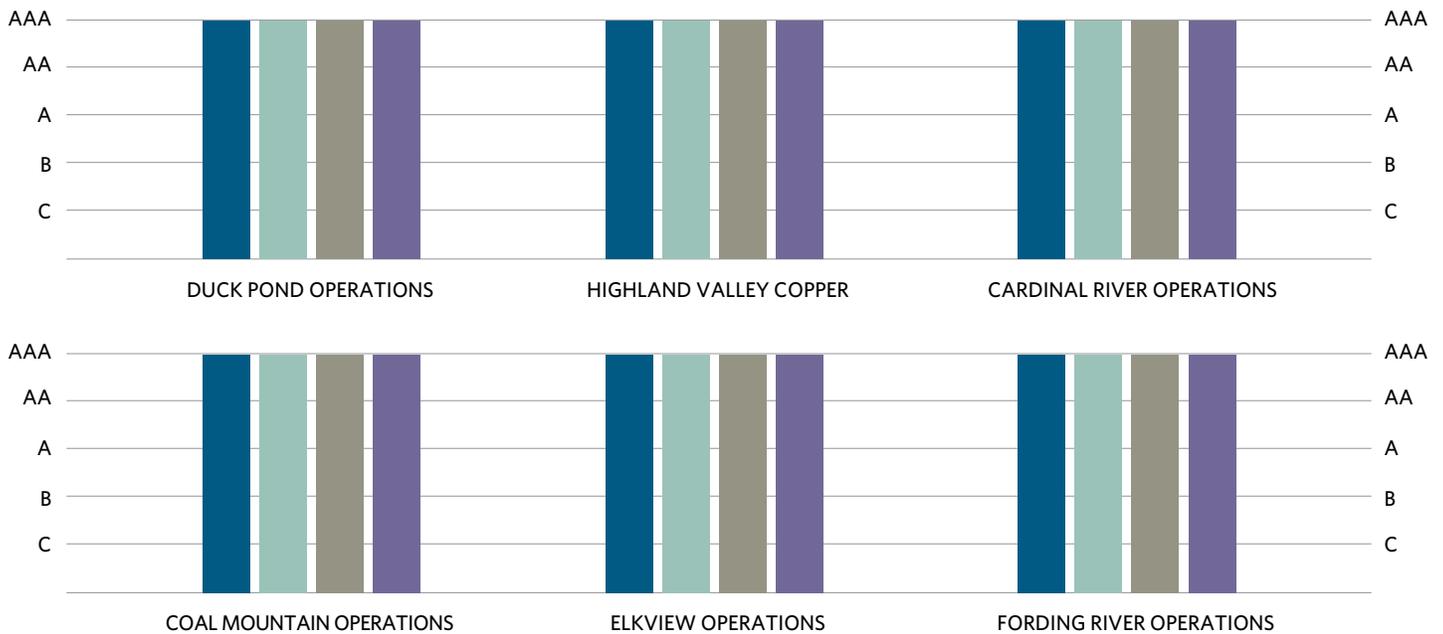
Externally Verified  
(select facilities)

FACILITY	PREPAREDNESS	REVIEW	TRAINING
TECK RESOURCES LIMITED*	✓	✓	✓
DUCK POND OPERATIONS	✓	✓	✓
HIGHLAND VALLEY COPPER	✓	✗	✓
CARDINAL RIVER OPERATIONS	✓	✓	✓
COAL MOUNTAIN OPERATIONS	✓	✓	✓
ELKVIEW OPERATIONS	✓	✓	✓
FORDING RIVER OPERATIONS	✓	✗	✗
GREENHILLS OPERATIONS	✓	✓	✓
LINE CREEK OPERATIONS	✓	✓	✓
TRAIL SMELTER	✓	✓	✓



### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



\*In 2014, Coal Mountain Operations, Line Creek Operations and the corporate office (crisis management) were externally verified.



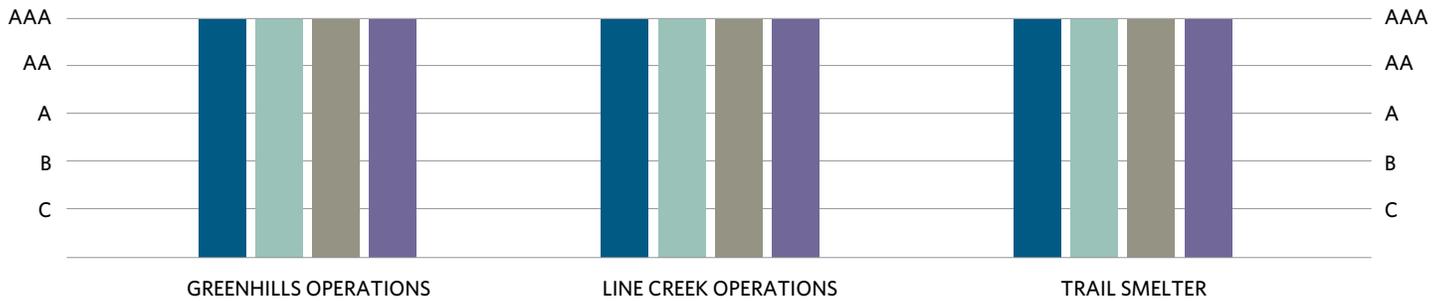
# MEASURING COMPANY PERFORMANCE TECK RESOURCES LIMITED\*



## ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT (CONTINUED)

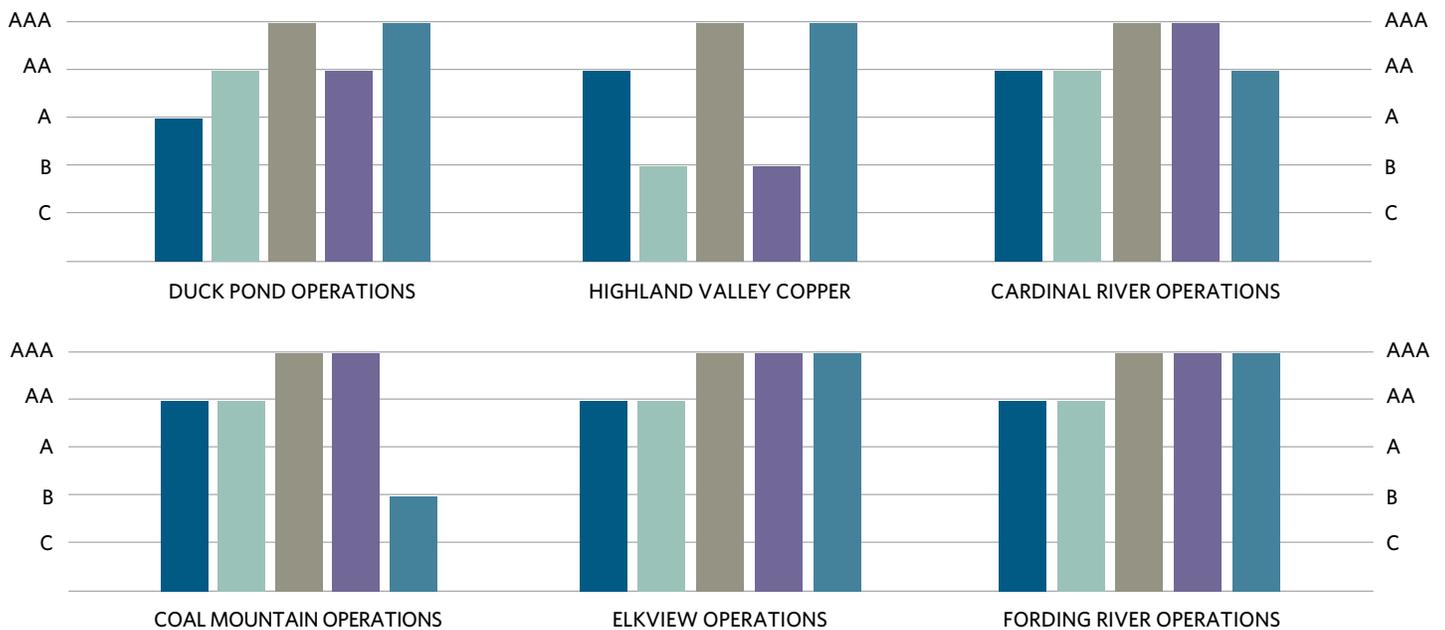
Externally Verified  
(select facilities)

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



## SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- TRAINING, BEHAVIOUR AND CULTURE
- PLANNING, IMPLEMENTATION AND OPERATION
- MONITORING AND REPORTING
- PERFORMANCE



\*In 2014, Coal Mountain Operations, Line Creek Operations and the corporate office (crisis management) were externally verified.



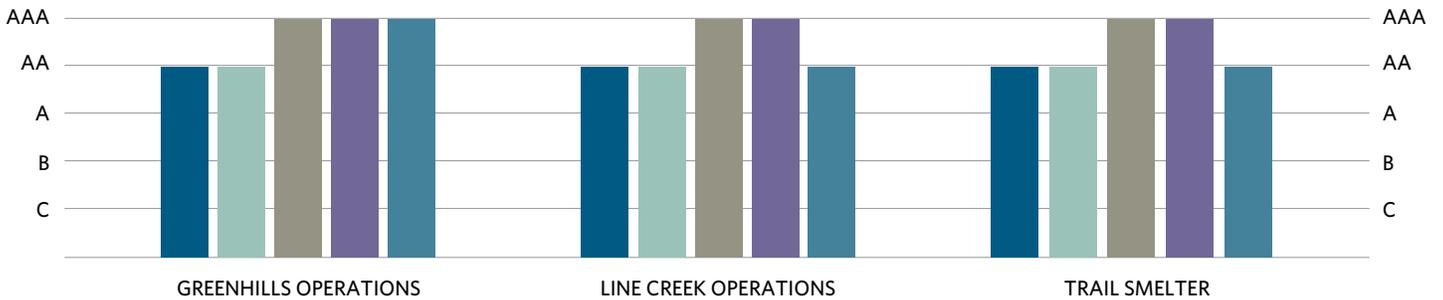
# MEASURING COMPANY PERFORMANCE

## TECK RESOURCES LIMITED\*

Externally Verified  
(select facilities)

### SAFETY AND HEALTH ASSESSMENT (CONTINUED)

- POLICY, COMMITMENT AND ACCOUNTABILITY
- PLANNING, IMPLEMENTATION AND OPERATION
- TRAINING, BEHAVIOUR AND CULTURE
- MONITORING AND REPORTING
- PERFORMANCE



### TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



\*In 2014, Coal Mountain Operations, Line Creek Operations and the corporate office (crisis management) were externally verified.



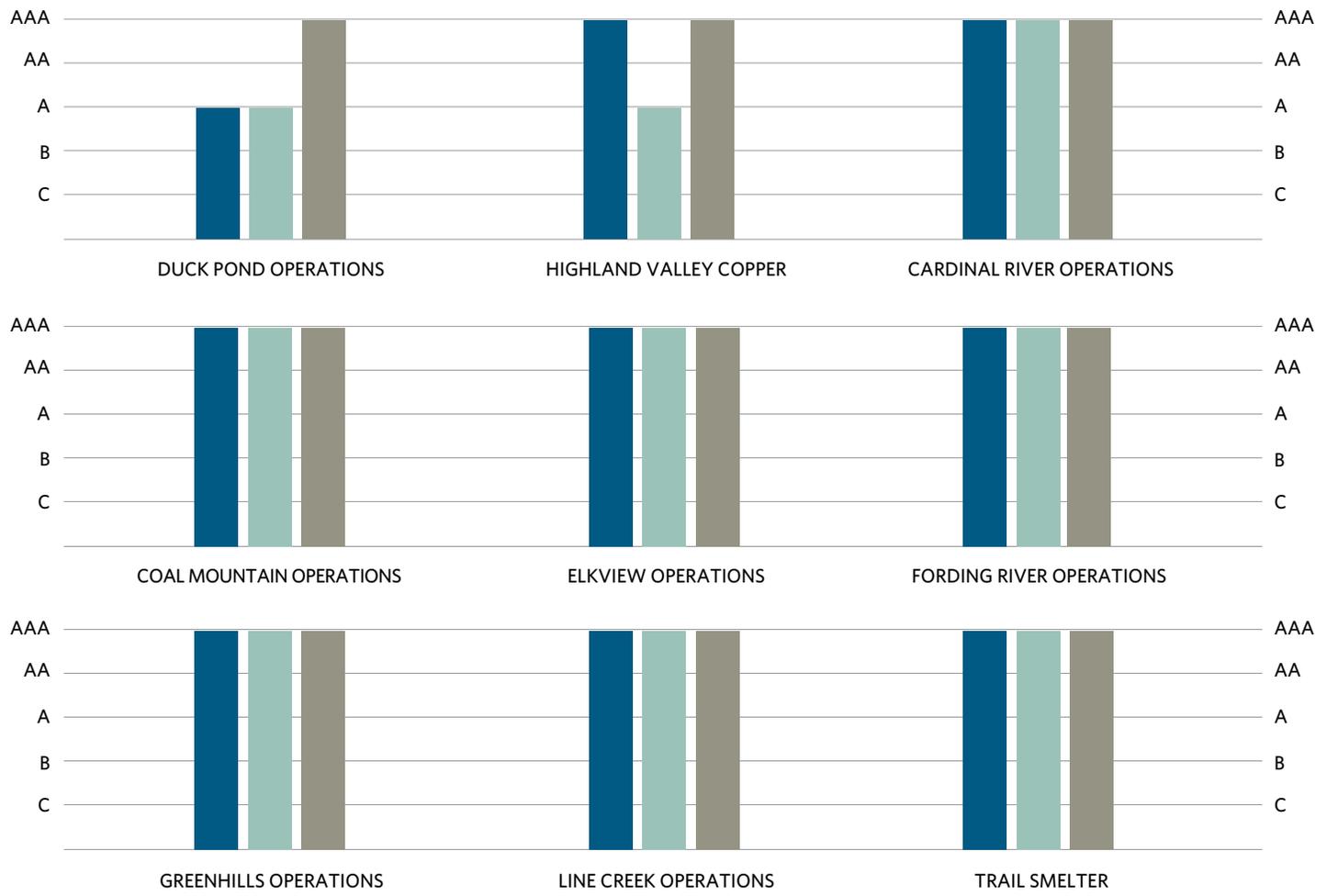
# MEASURING COMPANY PERFORMANCE TECK RESOURCES LIMITED\*



## BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

Externally Verified  
(select facilities)

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



\*In 2014, Coal Mountain Operations, Line Creek Operations and the corporate office (crisis management) were externally verified.



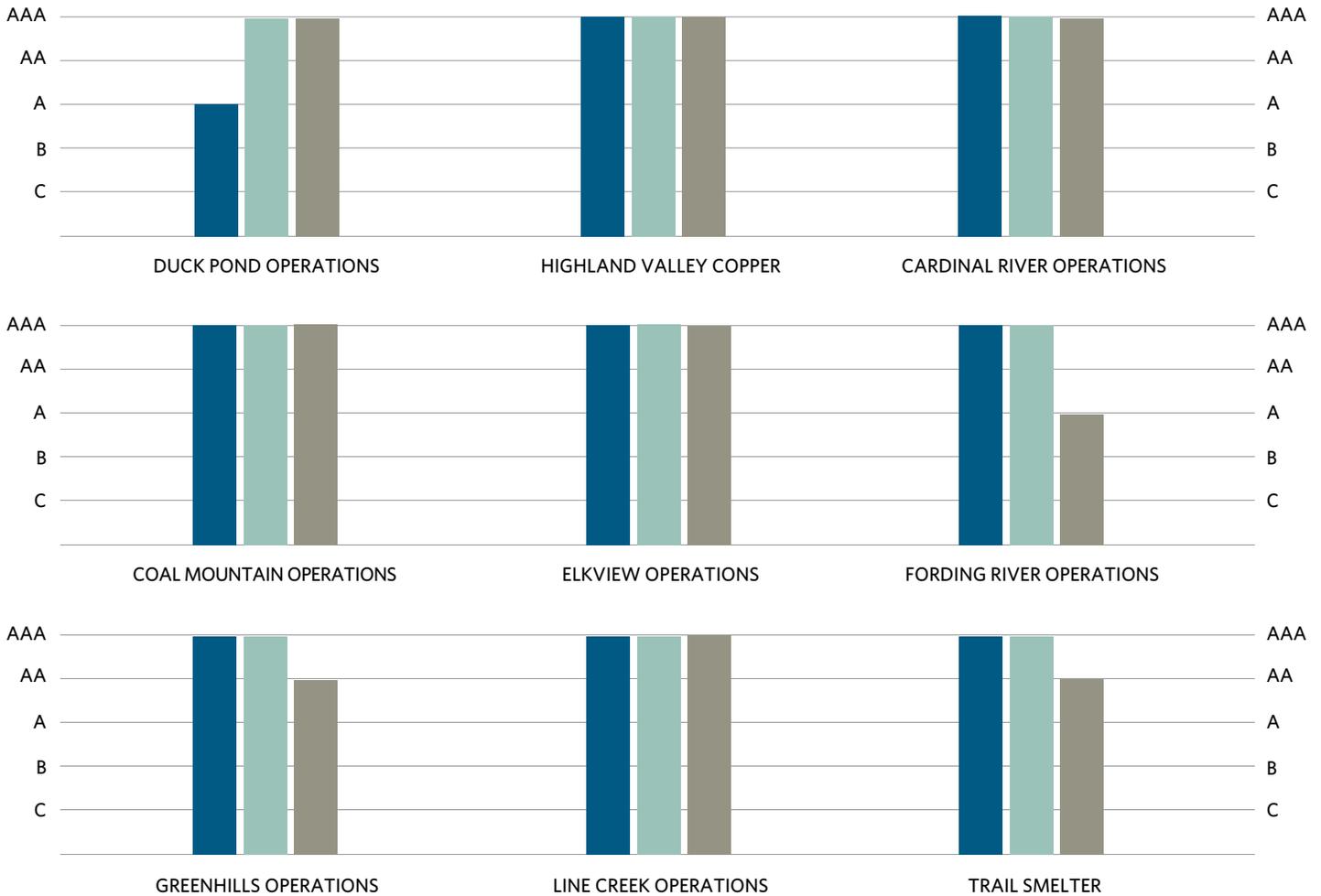
# MEASURING COMPANY PERFORMANCE

## TECK RESOURCES LIMITED\*

### ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

Externally Verified  
(select facilities)

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



\*In 2014, Coal Mountain Operations, Line Creek Operations and the corporate office (crisis management) were externally verified.





## COMPANY PROFILE - VALE

The Base Metals headquarters for Vale, the world's largest producer of iron ore and nickel, resides in Toronto, Ontario. Much of Vale's nickel production is derived from its Canadian operations, as is the company's production of copper, cobalt, platinum group metals, gold and silver. In Sudbury, Ontario, and Thompson, Manitoba, Vale operates integrated mine, mill, smelter and refinery operations. In Port Colborne, Ontario, Vale operates a cobalt refinery and a precious metals upgrading facility. In Newfoundland and Labrador, Vale operates a mine and mill at Voisey's Bay and is ramping up a new, state-of-the-art processing facility in Long Harbour. Vale employs about 7,000 people in Canada.

Vale's vision is to become the number one global natural resource company in creating long-term value through excellence and a passion for people and the planet. Vale believes in zero harm to its people, to its workplaces, to the communities in which it operates and to the natural environment. Vale demonstrates its commitment to zero harm by integrating sound risk management practices into all aspects of its business, by continually improving these practices, and by fully merging safety, health and environmental considerations into its economic and production goals. At all times, the company strives to leave a positive social, economic and environmental legacy in the areas where it operates.

### Aboriginal and Community Outreach

Vale is proud that all of its Canadian facilities have developed Aboriginal and community outreach activities and management programs that meet the performance expectations of TSM. The company's management systems and activities are tailored to the site and the requirements of the neighbouring communities. Vale has maintained a Level A or higher across all of the Aboriginal and community outreach indicators at all of its facilities, with the company's Manitoba and Newfoundland and Labrador operations achieving a Level AAA across the board in 2014. A few examples of Vale's local outreach activities are highlighted below.

In Sudbury, Vale collaborated with local First Nation and Métis communities to identify the Aboriginal traditional lands and treaty rights potentially affected by its operations. The company provides engagement and dialogue training to employees as required, including cultural training. Vale seeks traditional knowledge, as appropriate, from local Aboriginal communities and organizations, and uses it to support decisions and inform practices such as environmental monitoring. Vale follows consultation protocols established by Aboriginal communities and organizations and integrates these into company consultation procedures as much as possible. To ensure continual improvement, the company invites Aboriginal communities to contribute to periodic reviews of engagement processes.



**COMPANY PROFILE****VALE**

In May 2011, Vale funded the creation of the Thompson Economic Diversification Working Group. The group comprises stakeholders across northern Manitoba and has developed a series of plans to promote economic diversification in the City of Thompson and region. The plans include a proposed restorative justice facility, education and training (including an industrial skills and trades centre), housing, local and regional identity, economic development, regional infrastructure and a regulatory framework to modernize the city. This project was awarded the 2015 TSM Community Engagement Excellence Award.

In Port Colborne, Vale partnered with a group called Port Cares ([www.portcares.on.ca](http://www.portcares.on.ca)). The company allowed the group to use several of Vale's vacant residential lots to create the With My Own Two Hands community garden. The program provides community members with the opportunity to learn how to become successful gardeners. Participants plant, maintain and grow a variety of fresh vegetables for community members to pick and take home. Port Cares has also expanded the program to help local residents plant and grow raised-bed gardens in their own backyards. The company and the city have also opened the doors to the Vale Health and Wellness Centre for community use.

At Voisey's Bay, Vale's community of interest (COI) identification process involved extensive community consultations for the environmental assessment of the mine and concentrator project, and the negotiation of separate Innu and Inuit impact and benefit agreements (IBAs). As a result of this engagement, management practices and processes are in place to ensure that ongoing COI and stakeholder engagement occurs on a regular basis. Engagement and dialogue activities include IBA committees (Inuit and Innu); regular community visits by Vale's employment coordinators; annual community barbecues hosted by Vale in each Aboriginal community; a toll-free information line and a website to notify communities of Vale's marine transportation activities; and a community concerns line.

In 2014, production began at Vale's new nickel processing plant and port facility in Newfoundland and Labrador. The facility is adjacent to the Town of Long Harbour-Mount Arlington Heights, which has a population of approximately 300 people. Engagement and dialogue activities at Long Harbour include formal mechanisms — a community liaison committee for quarterly communication between the company and local communities, and a fisheries and aquaculture liaison committee for regular communication with local fisheries and aquaculture stakeholders. Additionally, Vale meets regularly with the municipal council and the town's local economic development agency. Vale introduced an innovative recruitment program for Long Harbour and, by year-end, had hired more than 350 people. A considerable training and workforce development effort is underway for the operations team as it prepares to take control of the facility once the plant is fully commissioned. The facility is expected to employ about 500 people.

**Energy Use and GHG Emissions Management**

Globally, Vale is committed to reducing its projected 2020 GHG emissions by 5% (its carbon target). Vale continues to execute its Sustainability Action Plan at its Canadian sites to improve performance on several key environmental indicators, including the use of direct and indirect energy. Performance in achieving these targets is measured and contributes to a portion of the annual variable remuneration of facility staff. Building on Vale's 90% overall reduction of sulphur dioxide emissions over the past 40 years, the Atmospheric Emissions Reduction project, known as Clean AER, will reduce current emission levels by a further 85% over the next five years through a \$1 billion retrofit of the Copper Cliff smelter in Sudbury, Ontario.

**Tailings Management**

Vale maintained its performance across all indicators of the TSM tailings management protocol in Ontario and Newfoundland and Labrador, averaging a Level A or higher. In Thompson, Vale achieved a Level A for its performance on four of the five indicators. The company received a Level B for the annual tailings management review indicator, but management at the Thompson operations has worked to improve performance in this area

## COMPANY PROFILE VALE

in 2015. The company has reviewed all tailings management policies with its COI, and senior management has endorsed and implemented the policies within budget allocations.

In Sudbury, the Central Tailings Area (CTA) operation continued with its well-established, third-party expert Tailings Review Board panel. Vale completed a detailed, week-long facility risk assessment for the CTA, and implemented some recommendations by year-end.

### Crisis Management Planning

Crisis management planning and preparedness is a critical component of Vale's risk management activities. Crisis management teams are well trained, and are willing to respond to internal emergencies and help the community when possible. Testing of a corporate crisis management system is planned in 2015, including a table-top exercise in Toronto and an integrated exercise with the operations. All of Vale's other facilities met the criteria in the crisis management planning protocol in 2014.

### Safety and Health

At Vale, life matters most. The company applauds the TSM initiative for developing a safety and health protocol and has aligned its safety systems accordingly. When possible, Vale shares its safety knowledge and experience with its communities by supporting such activities as Safe Workers of Tomorrow and Threads of Life. In Thompson, Manitoba, Vale has reviewed the city's annual Safe Operations Audit results and offered guidance for the next steps in the city's journey to zero harm. This dialogue and sharing of best practices has allowed the City of Thompson to reduce workplace injuries. At Voisey's Bay, Vale implemented the SafeProduction system across the operation, which provides tools for risk recognition, management and mitigation, with expectations for management coaching and interaction.

### Biodiversity

Vale supports a wide variety of environmental initiatives in the Greater Sudbury area, including slag re-greening, aerial seeding, tree planting and aquaculture. The company also supports a number of environmental community groups such as the Junction Creek Stewardship Committee, reThink Green and Clean Air Sudbury. Vale's aerial seeding program, which targets barren land around the company's operations, began in 1990 and has treated more than 9,000 acres of land. In Newfoundland and Labrador, Vale's construction of a 48,000-m<sup>2</sup> artificial reef complex at Long Harbour has created a fertile breeding environment for plant and marine species, including lobster, Atlantic cod and conch.

Biodiversity protection demonstrates how much Vale prizes the planet. In 2014, the company continued to actively support biodiversity work by partnering with the Manitoba department of conservation's woodland caribou collaring program, supporting the Vale Living with Lakes Centre, and conducting extensive biodiversity studies in Voisey's Bay. More than 220,000 pine seedlings are grown annually in greenhouses at Vale's underground and surface-level operations in Sudbury, Ontario, where over 6,000 fish were also raised in 2014 and released into area lakes and streams. Vale continues to be committed to sharing best practices across its facilities and developing a holistic plan to improve biodiversity management. In 2014, Vale was recognized as an industry leader in managing risks to waterways. Vale's Real Time Water Quality Monitoring Partnership was identified as a best practice and was a finalist for the TSM Environmental Excellence Award in 2014. In 2015, Vale was a finalist for the same award for the company's black bear management strategy at the Voisey's Bay mine

**FOR MORE INFORMATION, PLEASE VISIT: [WWW.VALE.COM](http://WWW.VALE.COM)**



# MEASURING COMPANY PERFORMANCE

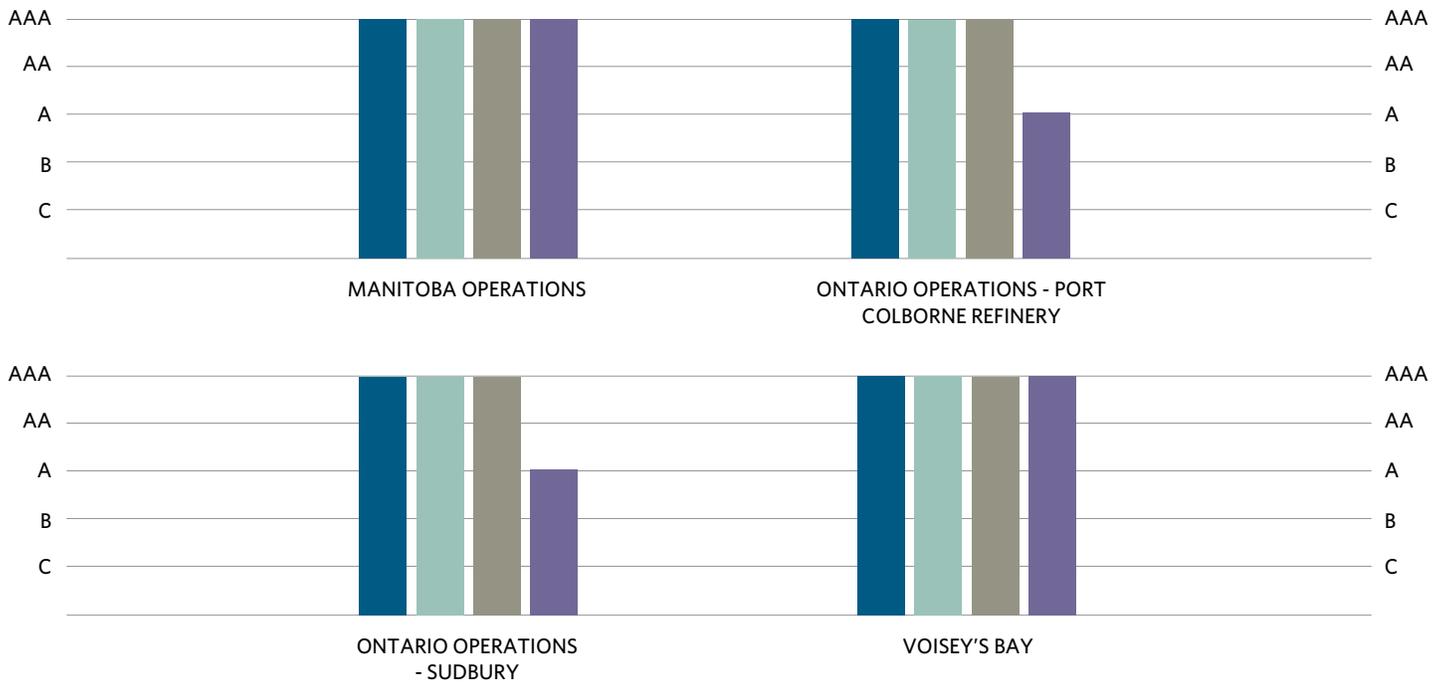
VALE

## CRISIS MANAGEMENT PLANNING ASSESSMENT

FACILITY	PREPAREDNESS	REVIEW	TRAINING
VALE	☒	☒	☒
MANITOBA OPERATIONS	☑	☑	☑
ONTARIO OPERATIONS - PORT COLBORNE REFINERY	☑	☑	☑
ONTARIO OPERATIONS - SUDBURY	☑	☑	☑
VOISEY'S BAY	☑	☑	☑

## ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- COMMUNITY OF INTEREST (COI) IDENTIFICATION
- COI RESPONSE MECHANISM
- EFFECTIVE COI ENGAGEMENT AND DIALOGUE
- REPORTING



Self-assessed results; last external verification: 2012; next external verification: 2015.

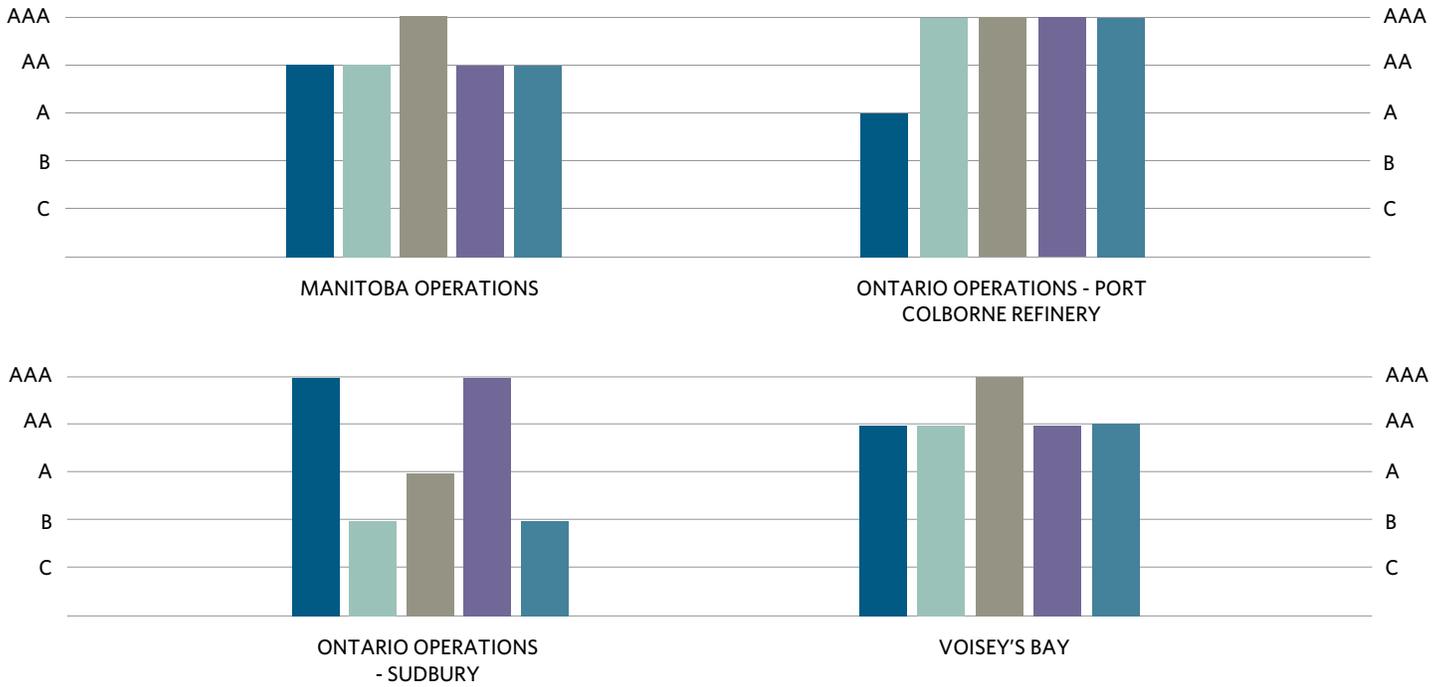


# MEASURING COMPANY PERFORMANCE

VALE

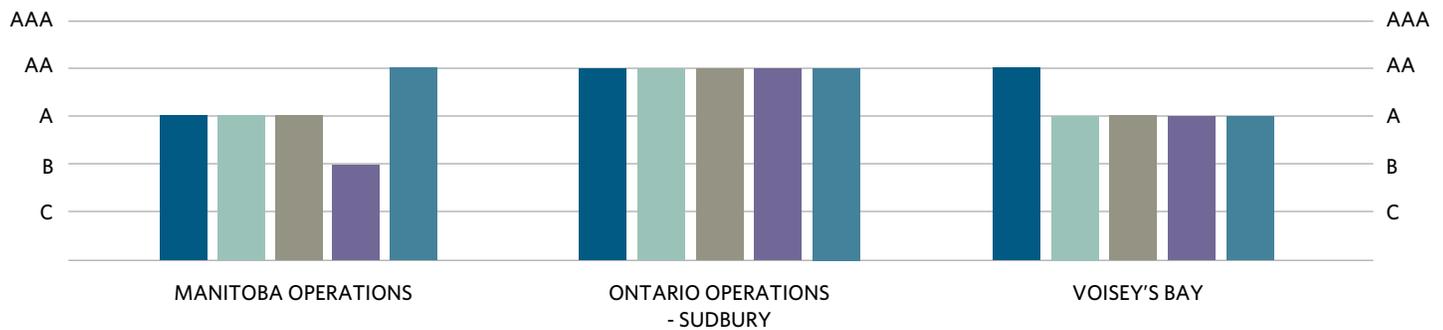
## SAFETY AND HEALTH ASSESSMENT

- POLICY, COMMITMENT AND ACCOUNTABILITY
- MONITORING AND REPORTING
- PLANNING, IMPLEMENTATION AND OPERATION
- PERFORMANCE
- TRAINING, BEHAVIOUR AND CULTURE



## TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- TAILINGS MANAGEMENT SYSTEM
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT



Self-assessed results; last external verification: 2012; next external verification: 2015.

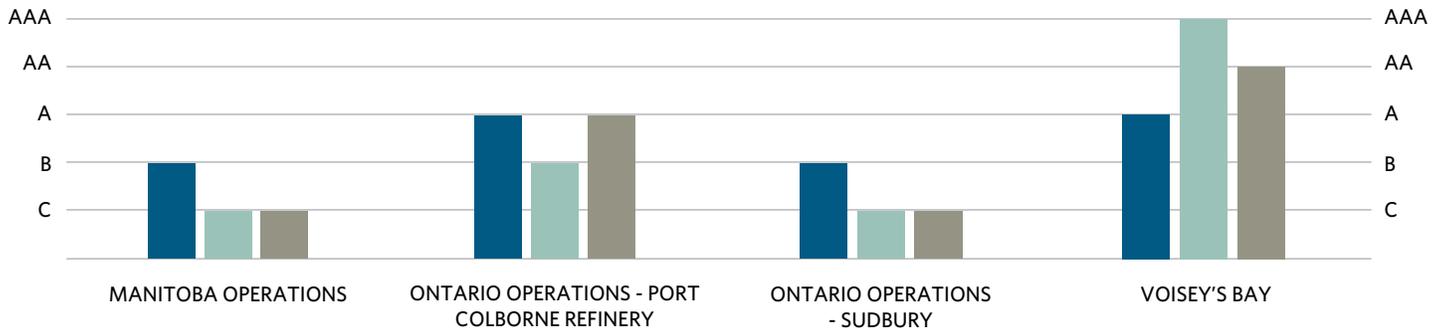


# MEASURING COMPANY PERFORMANCE VALE



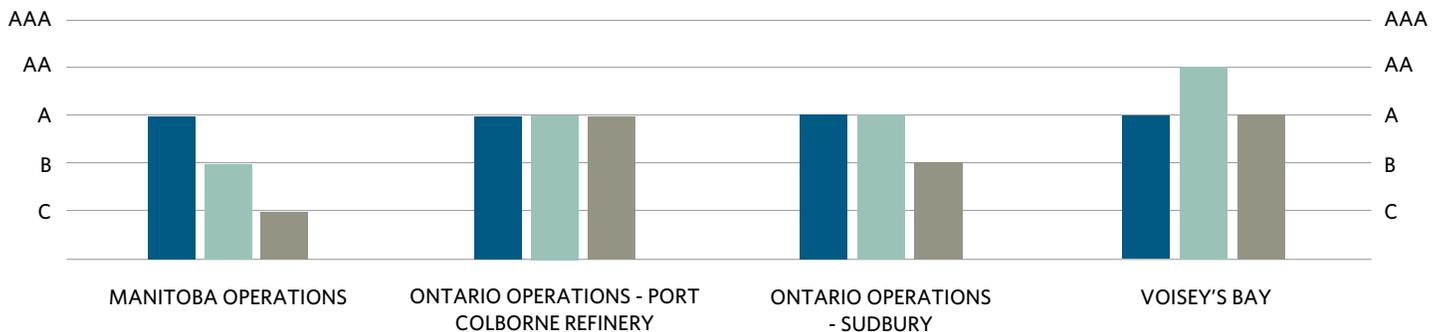
## BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



## ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



Self-assessed results; last external verification: 2012; next external verification: 2015.



**“IT IS REALLY GOOD TO WITNESS AND BE PART OF THE ONGOING EXPANSION AND IMPROVEMENTS TO THE TSM SYSTEM. IN CONJUNCTION WITH EFFECTIVE REGULATION, I BELIEVE THAT TSM CAN MAKE A SIGNIFICANT CONTRIBUTION TO GREATER QUALITY AND CONSISTENCY IN INDUSTRY’S SOCIAL AND ENVIRONMENTAL PERFORMANCE.”**

**ALAN YOUNG - COI PANEL MEMBER AND DIRECTOR, MATERIALS EFFICIENCY RESEARCH GROUP.**



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