TOWARDS SUSTAINABLE MINING
PROGRESS REPORT 2014
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INTRODUCTION
ABOUT TOWARDS SUSTAINABLE MINING

Towards Sustainable Mining (TSM) is the Canadian mining industry’s commitment to responsible mining. 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. By adhering to the principles of TSM, mining companies demonstrate 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. TSM’s core strengths are:

**Accountability:** Participation in TSM is mandatory for all MAC members, and is currently being phased in for members of the Mining Association of British Columbia and the Québec Mining Association. 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. This provides local communities with a meaningful view of how a nearby mine is faring.

**Transparency:** Mining companies commit to a set of guiding principles and report their facilities’ performance against the program’s 23 indicators annually in TSM Progress Reports. Each facility’s results are publicly available and are externally verified every three years.

**Credibility:** TSM includes ongoing consultation with a national Community of Interest (COI) Advisory Panel. This multi-stakeholder group helps our members and communities of interest foster dialogue, improve the industry’s performance and shape the program for continual advancement.

SYNCRUDE CANADA’S FEN RECLAMATION PROJECT NEAR FORT MCMURRAY, ALBERTA.
TOWARDS SUSTAINABLE MINING - 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.
- Practicing continuous improvement through the application of new technology, innovation and best practices in all facets of our operations.

* 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.

TECK’S GREENHILLS OPERATION NEAR ELKFORD, BRITISH COLUMBIA.
MESSAGE FROM THE PRESIDENT & CEO

Welcome to the 2014 TSM Progress Report. I am pleased to take this opportunity to present a detailed look at our members’ environmental and social performance for 2013.

With the development and implementation of TSM 10 years ago, MAC members committed to a continuous drive towards better environmental and social performance. Now, a decade later, I am proud to report that TSM has been successful in pushing for continuous progress at mining facilities across Canada and in other parts of the world. The proof is in the results, which have seen steady improvement since the implementation of TSM.

There has been a significant increase in the uptake of TSM over the years. Since 2004, the number of facilities reporting TSM performance results has nearly doubled. We expect to see this number continue to increase over the next few years as new members move into the public reporting phase. As well, in June 2014, the Québec Mining Association (QMA) became the second provincial mining association to commit to formally adopting TSM, following the Mining Association of British Columbia’s (MABC) adoption of the initiative in 2011. Over the next few years, MABC and QMA members will begin publicly reporting their performance against TSM protocols. Until then, MAC will work with both associations to provide training for companies to ensure that TSM protocols are applied consistently across all companies.

Throughout the years, TSM has been recognized by reputable organizations for raising the bar in corporate responsibility for the Canadian mining industry. TSM has received awards from the Globe Foundation (2005) and the Prospectors & Developers Association of Canada (2012). Most recently, in 2013, TSM was recognized with an Excellence in Corporate Responsibility Award. This award was sponsored by a group of highly reputable sustainability experts, including Green Living Enterprises, Canadian Business for Social Responsibility, CIRAIG (Interuniversity Research Centre for the Life Cycle of Products, Processes and Services), The Natural Step Canada, Jantzi-Sustainalytics, Corporate Knights, Pembina Institute, SustainAbility and Bob Willard.

We have worked hard to ensure that TSM remains a dynamic program that adapts to the changing priorities of Canadians. To this end, we have introduced two new protocols—biodiversity conservation management and safety and health—since the program was first established. This year, for the first time, facility-level data are presented in the report for these new protocols.

We also recently made important changes to our energy use and greenhouse gas (GHG) emissions management protocol to ensure that the requirements reflect current policy and best practices for climate change mitigation. In the past, members reported performance for six indicators (three for energy management and three for GHG emissions management). The protocol now includes three indicators that combine energy management and GHG emissions management. This year, you will see results against the new indicators for the first time.
In 2013, the membership continued to demonstrate performance improvements across the TSM protocols, including such highlights as:

- In the area of tailings management, 96% of facilities reported implementation of an operation, maintenance and surveillance (OMS) manual that adheres to industry best practices.

- The number of facilities assessed at a Level A or higher for demonstrating commitment and executive-level accountability for managing biodiversity conservation increased to 60% in 2013 from 33% in 2012.

- 85% of facilities reported a Level A or higher for implementing comprehensive energy use and GHG emissions tracking and reporting systems for internal and public reporting.

The overwhelmingly positive results in Canada, combined with the growing number of companies proactively implementing TSM at their foreign operations, have contributed to TSM becoming recognized as a leading corporate responsibility standard for mining companies at home and abroad.

Over the last year, we have seen increased interest in TSM from different organizations around the world. We have met with representatives from national and regional mining associations who are looking to implement corporate responsibility standards like TSM for their members. We are also seeing more and more investors showing interest in TSM as a tool to evaluate environmental and social risks associated with their investments. In 2014, we will continue to meet with interested organizations to communicate the benefits of TSM.

I hope you enjoy the 2014 TSM Progress Report. As always, it is intended to provide you with detailed information about our members’ progress and our goals for the future.

Pierre Gratton

President and CEO
Mining Association of Canada
MESSAGE FROM THE CHAIR OF THE TSM GOVERNANCE TEAM

TSM is taking the Canadian mining industry in an exciting direction. After 10 years of implementation, we are seeing strong results across the MAC membership and increased external interest in the initiative.

I could not help but reflect on this 10-year mark, looking back at what the original goals of the initiative were and looking forward at the work that still needs to be done.

In its infancy, the initiative wanted to demonstrate that mining could be done with a responsible approach to social, economic and environmental performance that is aligned with the evolving priorities of our communities of interest. In 2013, the TSM Governance Team analyzed TSM results since 2008 and found that the overall trend for the membership showed performance was continuously improving across all indicators. In fact, there have been no facilities remaining at Level C for multiple years. Our Community of Interest (COI) Advisory Panel reviews this performance and keeps us honest and aligned with the evolving priorities of society. MAC members benefit from the COI Panel’s activities, which are aimed at educating the industry about current issues and concerns.

After 10 years, TSM is now entering its teenage years, and as a typical teenager, the TSM Governance Team felt it was time to ask some tough questions about the rules that were governing TSM reporting and verification. We felt that TSM rules had to evolve and more companies had to consistently achieve high levels of TSM performance. To this end, we agreed to a new reporting and verification framework in 2013. The framework provides flexibility while allowing us to focus on improving performance in areas where we had not reached expected high performance levels. More robust reporting and verification ensures that TSM will continue to evolve and grow.

In addition, despite the positive trend over the past few years, the Governance Team felt it was timely to recommit to TSM and develop a mechanism to proactively address potential issues related to performance and non-conformance in the future.

First, the Board of Directors reconfirmed that participation in TSM is mandatory for our members’ Canadian operating facilities and added a condition that companies are expected to demonstrate continuous improvement over time. Second, a multi-staged process to address instances where companies are not fulfilling their obligations under TSM was established. Both will add credibility and rigour to TSM.

Over the past year, TSM has attracted attention from both domestic and international organizations and governments. Within Canada, financial institutions are beginning to recognize that TSM can be a valuable tool to evaluate investment decisions.

In 2013, MAC was invited by Debswana—a joint venture between De Beers and the Government of the Republic of Botswana—to provide training on TSM implementation. MAC also responded to inquiries about TSM from governments and mining associations in Finland, Norway and Turkey. The Government of Canada also invited MAC to present on TSM at the Intergovernmental Forum (IGF) on Mining, Minerals, Metals and Sustainable
Development during its annual general meeting. The IGF brings together representatives from over 50 countries to discuss mining policy issues and build governance capacity in developing countries.

More recently, the Québec Mining Association adopted TSM, making it the second provincial association after British Columbia to implement it. I think that we are on the right path to realize the original vision of TSM: provide guidance and a clear demonstration that the mining industry is acting responsibly and in a transparent fashion.

I look forward to continuing in my role as Chair of the TSM Governance Team and working with such a dedicated group of people.

Louise Grondin

Agnico Eagle Mines Limited
Chair of the TSM Governance Team
MESSAGE FROM THE COMMUNITY OF INTEREST ADVISORY PANEL

ABOUT THE COMMUNITY OF INTEREST ADVISORY PANEL
Established in 2004, the Mining Association of Canada’s Communities of Interest (COI) Advisory Panel monitors the TSM initiative and increasingly provides external support and guidance on key issues related to environmental and social issues facing the mining sector.

The Panel connects several times throughout the year and meets twice a year in person — in the spring during the Prospectors and Developers Association of Canada Convention in Toronto and in the fall at a selected mining operation. In fall 2013, for example, the Panel held its meeting in Sudbury and toured Glencore’s Nickel Rim South mine and met with local communities.

The non-industry members of the Panel prepare this annual statement for MAC, its members and other interested parties to provide an independent reflection on the TSM initiative and related mining issues.

PANEL’S PERSPECTIVES ON 2013 TSM RESULTS
The Panel is pleased to see overall performance improvement in the four original TSM protocols, along with the two new protocols, biodiversity conservation management and safety and health. Most members, for example, have developed operation and surveillance manuals for tailings management and a growing number of companies are reporting increased attention to community relations. However, work remains to be done. A few areas where the Panel expects to see improvement include:

• Crisis management planning protocol: While the Crisis Management Training indicator only dropped slightly in 2013 from 80% of companies responding “Yes” to 78%, the Panel is concerned with this trend and would like to see this score improve overall. Crises can and do happen at any given moment and communities of interest expect that all mining companies have robust training programs in place to ensure an effective response.

• Biodiversity conservation management protocol: In 2013, the Panel heard from several companies on how they were managing and conserving biodiversity at the site level, and we understand that further analysis and discussion is required to interpret the indicators. While the Panel is pleased to see performance improvements from last year, we expect to see more progress with MAC’s amendments to the protocol and members’ overall improved understanding of the issue.

KEY THEMES FROM THE PANEL’S WORK IN 2013
Focusing on the industry’s successes and challenges: In 2013, the Panel revised the process for companies undergoing Post-Verification Review (PVR) to gain a better understanding of the successes and challenges regarding the key environmental and social issues in mining, and whether verification is working as the Panel expected. This approach provides an opportunity for extended discussion of the TSM indicators and their interpretation, and a number of site or community-specific factors that are otherwise difficult to capture using TSM scores.

Recognizing the evolving policy and regulatory environment: TSM must be understood within the context of an evolving policy and regulatory environment in Canada at both the federal and provincial/territorial levels. From changes to environmental and social impact assessments and its impact on fish and fish habitat, to the long-term issues involved in the evolution of mining companies, the Panel is interested in understanding how these changes are affecting the mining industry and its relation to the environment and communities. The Panel devoted some time in 2013 through a webinar on the impact of regulatory changes on the mining industry and hopes to pursue this interest in coming years.
Understanding the link between TSM and communities: Few MAC members involve or share their TSM results with their communities of interest. The Panel is interested in further discussing how TSM results could be better communicated and shared with communities of interest. The Panel also feels that more attention is required to the evolving landscape of mining communities as development intensifies in more remote and northern regions.

Exploring international opportunities for TSM: The Panel is pleased to see that TSM is gaining ground internationally. After having discussed the issue at the 2013 meeting, and having observers from Finland attend a meeting, the Panel remains interested in continuing to explore international applications of TSM, including the role played by other indicators used by the international mining industry.

Understanding the value of TSM: Do mining companies find TSM valuable for improving environmental and social performance? The Panel is constantly seeking perspectives from companies on how TSM has been used and how it could be improved. The Panel heard key challenges from MAC members during the fall 2013 PVR session, such as the relevance of new protocols, particularly when company programs are in place to manage those issues, and the overall reporting burden on companies that are trying to keep up with disclosure requirements. While the Panel supports MAC’s revised reporting and verification framework to reduce the reporting burden, this conversation continues to be of interest.

Branding TSM to build awareness for non-industry communities of interest: The TSM initiative has the potential to be a “seal of approval” for non-industry communities of interest wishing to understand a specific mining site’s management performance on key environmental and social issues. This could help mining companies expedite obtaining social license and provide a common baseline for criticism. While the Panel is pleased to see increased interest in TSM from the investor community (in part thanks to our own Panel member in the financial industry), branding TSM to build awareness should encourage mining companies to reach higher results and should increase public confidence in the mining industry.

CONCLUDING REMARKS
Moving into 2014, the Panel will be focused on key issues, such as community development (both domestically and abroad), water, and the value of TSM. The Panel also aims to provide more ‘outputs’ — such as providing specific recommendations to MAC and enabling issue-specific gatherings between industry representatives and specific communities of interest such as the investor community and faith-based communities. The Panel is also pleased to have taken part in the judging process for the two new TSM Awards — the TSM Environmental Excellence Award and the TSM Community Engagement Award — which were awarded in May 2014.
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 our employees and communities of interest. They have collectively articulated their commitment to responsible mining through the TSM guiding principles. The 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 six performance areas:

- 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**

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

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 2013, 62 facilities reported their TSM performances.

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 results for 19 of the 62 facilities assessed last year.

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 the MAC website (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:

A revised reporting and verification framework has been approved for facilities that consistently achieve high levels of TSM performance. These changes will reduce reporting burdens and will provide sites with more flexibility to align TSM verification requirements with other audit and verification commitments.

The new framework is being 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 have been externally verified, the annual self-assessment becomes voluntary for three years for the protocol(s) that have reached these levels.

• The facility must undergo external verification before the end of that three-year period.

• During the three-year period, facilities will be deemed to 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, and safety and health. As well, given the significant changes made to the energy use and GHG emissions management indicators, the Board of Directors decided that the new reporting framework would not be retroactively applied for this protocol.

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 2013, included 12 individuals from Aboriginal groups, communities in which the industry is active, environmental and social NGOs, and labour and financial organizations. Six members of the MAC Board of Directors also sit on the Panel to provide a mining industry perspective to the discussions.

The COI Panel was formed in 2004 when the TSM initiative was established and played a key role in the program’s design from the very beginning. Today, the Panel continues to be integral to TSM’s evolution and implementation. The Panel serves as a platform for communities of interest and MAC members to discuss and collaborate on issues of mutual concern.

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 2013, the COI Panel held two meetings. The first was held in March in Toronto and focused on three main topics: biodiversity conservation, human rights and social net impact. On biodiversity, Inmet Mining (now First Quantum Minerals) met with the Panel to discuss how it integrated the TSM biodiversity conservation management protocol into its operations, including exploration sites and closed mines. The purpose of this session was to explore the complexity of biodiversity conservation at different stages of the mining life cycle. At the meeting, the Panel was also briefed on the work of MAC’s International Social Responsibility Committee, particularly in the area of human rights. Panel members discussed what actions a company would need to take to be identified as a Human Rights Defender, as defined by the United Nations. In general, many Panel members felt that the mining companies could work towards fulfilling the criteria of a Human Rights Defender. On social net impact, IAMGOLD Corporation discussed how a company can quantify and report on the net impact of a mine’s presence and investments on a community.

The Panel’s second meeting took place in October in Sudbury. The primary focus of this meeting was the Post-Verification Review of Teck Resources and Vale, which presented their verified TSM results. At the Panel’s request, the companies focused on performance in two priority areas of interest: biodiversity conservation and energy efficiency. During the two-day meeting, the Panel also met with members of the local community and toured Glencore’s Nickel Rim South facility.
During the fall meeting, a number of potential topics were identified for the Panel to address in 2014. The issues that emerged as priorities included international social responsibility, community development and water stewardship.

The COI Panel is currently seeking nominations to fill a vacancy on the Panel. In 2013, Barrie Ford, who represented the perspective of Inuit Canadians on the Panel since 2010, resigned. Barrie's thoughtfulness and enthusiasm will be missed by his colleagues on the Panel.

### 2013 COMMUNITY OF INTEREST ADVISORY PANEL

<table>
<thead>
<tr>
<th>Panel Category</th>
<th>Representative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social non-governmental organization</td>
<td>Joy Kennedy</td>
</tr>
<tr>
<td>Media/communications</td>
<td>Claudine Renauld</td>
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<tr>
<td>Aboriginal peoples</td>
<td>Dan Benoit, Chief Earl Klyne, Barrie Ford*</td>
</tr>
<tr>
<td>Environmental non-governmental</td>
<td>Alan Young, Nathan Lemphers, Maya Stano (alternate)</td>
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<tr>
<td>organizations</td>
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<tr>
<td>International development</td>
<td>Dr. Philip Oxhorn, Luc Zandvliet (alternate)</td>
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<tr>
<td>Economic/community development</td>
<td>Alan Penn, Victor Goodman</td>
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<td>Finance/investment</td>
<td>Stephen Kibsey</td>
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<td>Labour/workplace</td>
<td>Doug Olthuis</td>
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<td>Expert Category</td>
<td>Vacant</td>
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<tr>
<td>Industry representatives</td>
<td>Pierre Gratton, Louise Grondin, Peter Read, Glen Koropchuk, Mark Travers</td>
</tr>
<tr>
<td></td>
<td>Leanne Hall** (exploration representative)</td>
</tr>
</tbody>
</table>

*Left the COI Advisory Panel in 2013  **Left the COI Advisory Panel in 2014
INDUSTRY PERFORMANCE
UNDERSTANDING THE RESULTS

TSM assessments are conducted at the facility level, where they are most meaningful. The number of companies reporting TSM performance continues to grow. In 2006, 15 companies reported facility-level performance, and in 2013, this number grew to 23 companies, totalling 62 facilities. This report includes externally verified results for seven companies (ArcelorMittal Mining Canada G.P., Barrick Gold Corporation, De Beers Canada, Rio Tinto, Syncrude Canada, Teck Resources and Glencore).

It is the goal of MAC members for all their facilities to achieve a Level A performance for all indicators, including tailings management, energy use and GHG emissions management, Aboriginal and community outreach, biodiversity conservation, and safety and health. For crisis management planning, head offices and facilities achieve good performance 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 Level A or higher in 2012 and 2013 for Aboriginal and community outreach and tailings management. Because this is the first year of reporting against the revised energy use and GHG emissions management protocol, the results are presented in two graphs. The first graph shows the 2006 and 2012 results for the original six indicators and the second graph shows the 2013 results for the three current indicators. 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 of 2013 to 2012 results, as 2012 is the baseline year for these two protocols. For detailed facility-level results, please see the Measuring Company Performance section of this report.
Building strong relationships with the people whose lives we impact is a fundamental component of TSM. Working with our communities and employees, we have improved our understanding of the public’s interests and priorities and, at the same time, worked to create a safe work environment for our people. This section highlights the membership’s performance in Aboriginal and community outreach, safety and health management, and crisis management planning.

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, including Aboriginal communities and organizations. Mining facilities engage with communities that are affected or perceived to be affected by mining operations or have a genuine interest in the performance of a facility.
COMMUNITIES AND PEOPLE

Indicator 1: Community of Interest 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.

When MAC members first began reporting against the TSM performance protocols, many companies had informal processes for identifying communities of interest. In 2006, only 48% of facilities were assessed at a Level A or higher for indicator 1. Now 95% of members are able to demonstrate that, at a minimum, they fulfill all Level A requirements for this indicator.

Of the facilities that achieved a Level A or higher in this area, 50% have been assessed at a Level AAA for this indicator. 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 Community of Interest 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 the community. Results for this indicator remain strong, with 82% of the membership reporting a Level A or higher for their facilities, a slight decrease from last year’s results of 88%. However, the percentage of facilities at a Level AAA for this indicator has increased from 13% in 2006 to 42% in 2012 and 48% in 2013.

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 its communities of interest, a facility must have processes in place to ensure that communications are written in a language that is clear and understandable to all parties involved, that facility staff 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 the capacity of its communities of interest. A facility must also ensure that communities of interest are engaged in periodic reviews of the engagement process to allow for continual improvement and that negotiated agreements with Aboriginal peoples are in place when appropriate.

Indicator 3: Community of Interest Response Mechanism
The third indicator seeks to ensure that facilities have processes in place to receive feedback from their communities of interest and ensure that they consider and respond to community complaints and concerns. In 2013, 90% of the membership reported a Level A or higher. This means that facilities have a good understanding of the concerns of their communities and have established processes to respond to and track issues. Facilities that achieve a Level A are also able to demonstrate that input from their communities is incorporated into their decision-making processes.

Among the facilities that reported a Level A or higher for indicator 3, 53% achieved a Level AAA rating for this indicator. Facilities rated at this level collaborate with their communities to establish and achieve common community goals.

Indicator 4: Reporting
The fourth indicator requires facilities to establish formal systems to report on concerns raised by communities of interest.
In 2013, 87% of the membership reported a Level A or higher for indicator 4. To achieve a Level A, a facility must have a system to track and follow up on feedback from communities of interest and ensure this feedback is considered in the facility’s decision-making process.

Of the facilities assessed at a Level A or higher, a large portion (42%) is actually reporting Level AAA performance for this indicator. Facilities that achieve a Level AAA demonstrate excellence and leadership by publicly reporting concerns raised by their communities, providing opportunities for communities of interest to provide feedback on public reporting, and actively seeking feedback on engagement, dialogue and consultation processes.

The following case studies are good examples of how collaboration with the community helps achieve common goals and fulfills a requirement for a Level AAA in the Aboriginal and community outreach protocol.

**CASE STUDY: GLENCORE CANADA**

Attracting and Advancing Inuit Talent in Northern Quebec

Situated in the Nunavik territory of northern Quebec, Glencore Canada’s Raglan Mine has made it a priority to attract and retain as many local Inuit employees as possible. To achieve this goal, in 2008, Glencore launched its Tamatumani program, which means “second start” in Inuktitut. The program has helped the company increase Inuit employees by 170% and reach a retention rate of 80%.

Built through collaboration with community partners, the program encourages career development of Inuit employees, provides technical training and basic skills training, and supports the integration of new Inuit staff. As part of the initiative, Glencore created the Inuit Employment Centre, which manages the entire staffing process and maintains a bank of candidates interested in working at the mine, and whose workers visit Nunavik communities to ensure residents are aware of available positions.

In 2013, Glencore created a new program called RIDE (Rapid Inuit Development and Employment) to complement the Tamatumani program to encourage internal mobility for Inuit employees with high potential. The RIDE program provides personal career development plans, and has developed partnerships with educational institutions to offer Inuit students scholarships, summer jobs and internships. Since the founding of the program, 85 positions have been created for Inuit workers in nearly 30 different types of jobs.

*FOR MORE INFORMATION, PLEASE VISIT: WWW.GLENCORE.COM.*
The region of Labrador West — comprised of Labrador City and Wabush — is a good example of how mining can create modern towns. As towns develop and grow, however, they can experience pressures like rising housing and transportation costs, a lack of social services and infrastructure, and difficulty in attracting and retaining skilled employees.

In 2006, the Iron Ore Company of Canada (IOC), a division of Rio Tinto, sought to address some of these pressures by establishing a Community Advisory Panel — a grassroots group that acts as a consultative forum for the company. Originally intended to focus on only on Labrador City, IOC decided to broaden the Panel’s scope to cover the entire Labrador West region in light of rapid growth resulting from development in the Labrador Trough. The Panel is currently co-chaired by IOC and Cliffs Natural Resources, and meets regularly to share information and develop solutions that will benefit local communities.

In 2012, IOC took one step further by creating a Regional Task Force to complement the Panel’s efforts. The taskforce can escalate issues to the government when needed and includes senior executives from IOC, Cliffs Natural Resources and other mining companies, along with senior municipal and provincial government officials. Together, these groups have generated positive results for the region, including advocating for affordable housing, working to ensure the region has appropriate health and emergency services and community infrastructure, and partnering with colleges to improve education and training opportunities.

For more information, please visit: www.riotinto.com.

The Iron Ore Company of Canada’s Emergency Response Team in Labrador City.
Established as a mining community in the late 1950s, the City of Thompson has become a regional service hub and gateway to Northern Manitoba. However, economic volatility and the fact that Vale will reduce its operations with the closure of its smelter and refinery by 2015 have underlined the need to broaden and diversify the area’s economic base.

Five years in advance of the partial decommissioning, Vale proactively engaged and fully-funded rePlan to co-launch the Thompson Economic Diversification Working Group (TEDWG), which developed action plans for economic development and diversification over the project’s two-year lifespan. The group was highly collaborative, involving representatives from the Keewatin Tribal Council, Manitoba Keewatinowi Okimakanak, Nisichawayasihk Cree Nation, the City of Thompson, the Manitoba Métis Federation, Thompson Chamber of Commerce, and others.

Communities helped to set all of the group’s priorities, which were focused on addressing economic, social, educational and health aspects and barriers. The group’s actions plans have now transitioned to community groups and stakeholder organizations for implementation. The process represents unprecedented levels of community and stakeholder engagement funded entirely by a mining company nearly five years in advance of a partial decommissioning project to ensure sustainable economic development in the community.

FOR MORE INFORMATION, PLEASE VISIT: WWW.VALE.COM.
CRISIS MANAGEMENT PLANNING

In times of crisis, the first few hours are critical. In addition to mitigating the cause of the crisis, the company must also continuously communicate how it is managing and resolving the situation. 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, 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 protocol to require assessments at both the corporate and facility levels. Member companies assess their crisis management planning performance 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, we have seen steady improvement of results in this area since 2006.
**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. There has been a steady increase in the percentage of corporate offices and facilities answering “yes” for indicator 1 over the past few years. In 2006, only 53% reported adherence to all criteria for this indicator. Since then, we have seen that percentage increase to 84% in 2013.

**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 per 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 in this area have improved from 59% reporting “yes” in 2006 to 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 the 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. The results in the area of training have improved over the past few years, from 40% of companies and facilities meeting all of the criteria in 2006, to 78% in 2013.
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.

Safety and health is one of TSM’s newest protocols, and this is the first year that facility results are available. On an aggregate basis, the results in this area remain strong and are consistent with the data presented in the 2013 TSM Progress Report.

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. In 2013, 95% of the reporting companies achieved a Level A or higher for indicator 1. Facilities that achieve this rating 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 Level A have been satisfied. To achieve a Level AAA, a third-party audit must be conducted. In 2013, 23% achieved a Level AA for this indicator and 32% achieved a Level AAA.

**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. In 2013, 90% of facilities were assessed at a Level A or higher for indicator 2. 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 2013, 16% achieved a Level AA and 44% achieved a Level AAA for this indicator.

**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. The aggregate results for this indicator are strong, with 89% of reporting facilities assessed at a Level A or higher. 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.

In 2013, 65% of facilities achieved a Level AAA for indicator 3. This means that the facility’s commitment to safety and health is embedded throughout the facility and that management demonstrates this commitment through one-on-one interactions with employees.

**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. Results in the area of monitoring and reporting have been positive, with 79% of the facilities assessed at a Level A or higher. Of these facilities, 11% are assessed at Level AA and 48% have achieved a Level AAA. To achieve these high 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 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 2013, 94% of the reporting facilities were assessed at a Level A or higher for indicator 5, showing the membership’s strength in this area.

Recognizing that safety risks vary from facility to facility, TSM requires facilities to incorporate formal hazards identification, risk assessments and control processes into the safety and health management system. The following case study demonstrates how risks related to radiation are managed at Cameco’s uranium mines.
COMMITMENTS AND PEOPLE

CASE STUDY: CAMECO CORPORATION
Safe Mining of Uranium Presents Unique Risks Not Seen in Other Mining Sectors

Uranium ore is radioactive. Mining it can potentially expose workers to radon gas, long-lived radioactive dust, as well as gamma radiation. None of these hazards can be seen and all need to be effectively managed to assure the continued safety of mine workers.

Cameco has effective programs and codes of practice in place to manage these risks and keep workers’ exposures as low as reasonably achievable.

Radiation protection is particularly challenging at Cameco’s Canadian mining and milling operations in northern Saskatchewan where the ore grades are up to 100 times greater than the world average for uranium mines.

The Canadian Nuclear Safety Commission (CNSC), which licenses and regulates all nuclear facilities in Canada, has set 50 millisieverts (mSv) as the maximum annual radiation dose any worker can receive. Annual radiation doses to Cameco miners are typically much lower — around 1.5 to 2 mSv or just 3 to 4% of the allowable limit. For reference, scientific studies by radiation experts show crews on airliners likely face an average of more than 2 mSv from cosmic radiation as a result of spending so much time at commercial flight path altitudes.

Radiation protection at a uranium mine is accomplished through controls such as:

- Reducing time spent around radiation sources
- Increasing the distance between workers and radiation sources
- Placing a shield between employees and radiation sources
- Using robust ventilation to provide clean air and remove radon and dust

Each Cameco operation has a radiation protection program that addresses the specific conditions at the site. These programs are subject to approval and ongoing review by the CNSC. These programs require the consideration of radiation protection in the physical design of all facilities and operating procedures. They also provide for systematic monitoring of radiation in work areas and the tracking of individual workers’ exposures using a combination of monitoring devices and health testing.

Workers are provided with an individual dosimeter that tracks personal exposure. These devices are shipped off site monthly to be assessed by a dosimetry service, itself independently licensed by the CNSC. At all times during the year, miners are updated on their cumulative exposure from an independent source.

The result of this robust program is that Cameco’s average annual radiation dose to its miners, already low, has been trending down even further in recent years.

FOR MORE INFORMATION, PLEASE VISIT: WWW.CAMECO.COM.
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. This section describes ways in which facilities have developed systems to bolster environmental stewardship through best practices in tailings management and biodiversity conservation management.

**TAILINGS MANAGEMENT**

Tailings impoundments are necessary components of mining activity, and it is crucial that they be managed responsibly to protect human safety and the environment. The 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. This protocol seeks to ensure that facilities have a formal policy in place, have developed and implemented a tailings management system, have assigned accountability to the company’s CEO or COO, and have developed operation, maintenance and surveillance (OMS) manuals for all tailings impoundments. Facilities must also conduct annual reviews of their management system and report the results of this evaluation to the accountable executive officer to meet the requirements of this protocol.

With its members, MAC developed guides that are used around the world. These guides outline how mining companies can safely operate tailings facilities by adhering to best practices in tailings management. The TSM tailings management protocol is directly related to this guidance and in order to achieve a Level A or higher, facilities must demonstrate adherence to the tailings management guides.

Overall, the results for tailings management have improved significantly over the past few years. Since 2008, when performance in this area was deemed a priority, MAC has delivered training to practitioners across the country on the application of the tailings management guides and protocol.
ENVIRONMENTAL STEWARDSHIP

TAILINGS MANAGEMENT
PERCENTAGE OF FACILITIES AT LEVEL A OR HIGHER 2006, 2012 AND 2013

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, all aspects of tailings management comply with regulatory requirements and conform to sound engineering practices, consultation occurs with communities of interest regarding tailings management, and programs for ongoing review and continual improvement are implemented.

In 2013, 82% of reporting facilities were assessed at a Level A or higher for indicator 1. This is a notable increase considering that in 2006 only 44% of the reporting 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. The percentage of facilities assessed at a Level A or higher for this indicator has increased from 39% in 2006 to 77% in 2012 and to 80% in 2013.

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. Executive accountability for tailings management is essential to the implementation of a tailings management system. It also signals the importance of tailings facilities to the mining business and the potential for significant adverse impacts that improper tailings management practices can have on the environment. 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.

The results for indicator 3 have shown continuous improvement over the years. The percentage of reporting facilities assessed at a Level A or higher has increased from 61% in 2006 to 92% in 2012 and to 96% in 2013.

**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, performance of, and financial resources allocated to the tailings management system. 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 in this area have been steadily improving over the past few years. The percentage of facilities assessed at a Level A or higher has increased from 56% in 2006 to 90% in 2013.

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

The fifth indicator confirms whether a company has developed a comprehensive OMS manual. The OMS manual defines site protocols for safe operation, maintenance and surveillance of tailings and water management facilities. It is the instruction manual for operating these 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 the safety of tailings facilities and surrounding communities. MAC maintains a detailed guidance manual specifying best practices on how to develop an OMS manual and what information should be included. This guide can be accessed on the MAC website (www.mining.ca).

The results for indicator 5 are consistent with the performance for the other areas covered by this protocol. In 2013, 96% of the reporting facilities were assessed at a Level A or higher, which demonstrates a significant increase from 2006 when only 47% of the reporting facilities achieved a Level A or higher.

**Audit or Assessment of Tailings Management**

Mining companies can demonstrate leadership by commissioning a formal independent audit or assessment of their tailings management system. Levels AA and AAA across all five indicators of the tailings management protocol require an audit or assessment. At Level AA, this audit or assessment is internal, meaning that the audit or assessment is conducted by an individual or team that is internal to the company but is independent from the site being assessed. At Level AAA, this audit or assessment is external, and the company is required to hire a third
party to conduct the assessment. The objectives of the audit or assessment are to evaluate whether the tailings management system conforms to MAC’s tailings management guidance manual and whether the system has been implemented. The independent assurance provided through an audit or assessment is designed to help companies improve their performance and provide communities of interest with assurance that tailings facilities are being managed to best practice standards.

Since 2006, there has been a strong increase in the percentage of facilities assessed at Levels AA and AAA in all five of the tailings management indicators. For example, in 2006, only 3% of facilities were assessed at a Level AA and only 6% were assessed at a Level AAA for indicator 1 of the protocol. Now, 14% are assessed at a Level AA and 22% are assessed at a Level AAA for this indicator.

The following case study, which highlights tailings remediation work being conducted at Hudbay Minerals’ Flin Flon operation, is an example of how consultation with communities of interest can influence a facility’s tailings management system.

**CASE STUDY: HUDBAY MINERALS**

**Tailings Area Remediation**

Shortly after the tailings pond was developed at Hudbay Minerals’ mine near Flin Flon, Manitoba, a town site was established at the south end of the facility. For several decades, the close geographical relationship between the facility and the community posed very few issues. However, in the early 2000s, limited snow cover combined with high winds resulted in freeze-dry conditions on some tailings material. The company quickly made a decision to close the southern portion of the facility and remediate that area. There is now an ongoing project in place, which continues each construction season. Approximately two hectares are covered with layers of clay and topsoil each year, which is then hydro-seeded to help foster sustainable vegetation and reduce the risk of dust impacting the neighbouring community.

This project required the closure of a significant section of an active tailings facility, and the company had to revise its tailings management plan. The project has also helped strengthen the relationship between the company and the community. As a result, Hudbay has heard many positive comments from members of the neighbouring community about how the project has improved the appearance of the area and reduced the potential for airborne dust.

**FOR MORE INFORMATION, PLEASE VISIT: WWW.HUDBAYMINERALS.COM.**

**EARLY GROWTH AFTER TAILINGS AREA REMEDIATION AT HUDBAY MINERALS’ OPERATION IN FLIN FLON, MANITOBA.**
BIODIVERSITY CONSERVATION MANAGEMENT

We believe that mining, conducted in consultation with communities of interest, can co-exist with biodiversity conservation. Conserving biodiversity through all stages of a mine’s life cycle is an industry priority and helps to 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 made 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 to communicate the performance of facilities publicly.

There are many elements that make up a biodiversity conservation management system, and MAC members are still working to understand the requirements of this new TSM protocol. The 2013 aggregate results indicate improvements have been made since 2012. Notably, the number of facilities assessed at a Level A or higher for indicator 1 of this protocol has nearly doubled since last year.

**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 established 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 for biodiversity conservation that has been communicated to relevant employees. This commitment must be consistent with the intent of MAC’s Mining and Biodiversity Policy Framework, and there must be defined roles and responsibilities for its implementation. The percentage of facilities assessed at a Level A or higher for indicator 1 has nearly doubled in the last year. The percentage has increased from 33% in 2012 to 60% in 2013.
ENVIRONMENTAL STEWARDSHIP

**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. Since the first year of reporting, the aggregate results show an improvement. The results show that 52% of facilities have achieved a Level A or higher, which is an increase from 39% in 2012.

Of the facilities assessed at a Level A or higher for indicator 2, 29% have 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, which can include elements such as investments in research and development, contributions to a greater scientific understanding of the protection of biodiversity, ecosystem services valuations, and encouragement of employee volunteerism in community-based biodiversity initiatives.

**Indicator 3: Biodiversity Conservation Reporting**

The third indicator is related to reporting systems. The purpose of this indicator is to encourage companies to develop systems to inform internal 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 2013, 55% of facilities achieved a Level A or higher for this indicator, which represents an increase from 47% in 2012.

The following case studies are good examples of how engagement and dialogue with communities of interest can lead to meaningful results on the ground.

**CASE STUDY: DOMINION DIAMOND CORPORATION/ RIO TINTO**

**Grizzly Bear Monitoring in the NWT**

In response to interest in tracking regional grizzly bear trends, Dominion Diamond Corporation’s Ekati mine and Rio Tinto’s Diavik mine established the Grizzly Bear DNA program in the Northwest Territories in 2012. The large-scale study encompasses a 16,000-kilometre area around the two diamond operations and will help determine if mine-related activities influence the relative abundance and distribution of grizzly bears over time.

Hair samples are collected and submitted for DNA analysis. The compilation of results in consecutive years will help provide an accurate snapshot of the baseline population study area. The program will be repeated every three years to compare population levels with this baseline to identify trends, such as population growth/decline, size of home range and emigration/immigration of new animals.

This project, which combines scientific research and traditional knowledge, is the largest grizzly bear DNA program in the territory. It was also the first major collaboration between diamond mines in the region. De Beers has also begun Grizzly Bear DNA programs at the Snap Lake mine and the Gahcho Kué project in addition to the program at the Ekati and Diavik mines.

**FOR MORE INFORMATION, PLEASE VISIT: WWW/DDCORP.CA.**
CASE STUDY: IAMGOLD
Improving biodiversity through village reforestation in Burkina Faso

The populations around IAMGOLD’s Essakane mine in the semi-desert Sahel region of Burkina Faso are dependent on trees for firewood, food, feed for livestock and traditional medicine. With trees having to be removed to construct the mine, IAMGOLD launched a reforestation program in 2009 to compensate for the loss to local biodiversity and made a goal of 100,000 living trees by the time it ceases operations.

The project emerged directly from exchanges with the local community, and residents were involved from the planning stage through to implementation. To ensure that the plantations flourished, IAMGOLD trained groups of women in nursery techniques. The program demonstrates the positive outcomes that can result from a mining company and communities working together, with the initiative’s success largely attributed to its participatory and community-driven process.

Since the program began, more than 200,000 trees have been planted. Forest areas when the mine ceases operation are expected to be comparable or superior in terms of size, quality and function to those existing on the mining site prior to construction. There is also expected to be a 30% increase in the number of trees considered threatened, rare, endangered or protected in the project zone.

FOR MORE INFORMATION, PLEASE VISIT: WWW.IAMGOLD.COM.
CASE STUDY: VALE
Tracking real-time water quality for communities in Newfoundland and Labrador

Managing risks to waterways is critical to mining operations and the communities that rely on them. Vale’s Voisey’s Bay operation in Newfoundland and Labrador, in partnership with the provincial government, set an industry best practice through the Real Time Water Quality (RTWQ) Monitoring Partnership — a program that provides near real-time (four hour delay) information on water quality of various streams within the vicinity of the mine and mill.

Through this project, water quality data is uploaded via satellite link from four solar-powered stations and can be read online by the public. The information is used by community members to enhance traditional knowledge as the water stage, flow measurements and water temperature can help predict the migration patterns of Arctic Char. Moreover, the provincial government can use the data to inform regulation development, when necessary, and aid in site-specific risk assessments.

In 2003, Vale was the first industry partner to sign on to the RTWQ. In 2012, the partnership was extended with Vale providing more funding and equipment to the program. Data is available since the beginning of mining activities in the area and, in 2012, Vale and the provincial government committed to conducting a thorough review of all years of data.

FOR MORE INFORMATION, PLEASE VISIT: WWW.VALE.COM.
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 greenhouse gas (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 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.

In 2013, a revised energy use and GHG emissions management protocol was introduced to the membership. The new protocol combines energy use and GHG emissions into one management system. This change acknowledges that in the mining sector, facilities produce GHGs primarily through the burning of fossil fuels for energy. The graphs that follow show 2006-2012 performance based on the original six indicators of this protocol and 2013 performance for the three current indicators.
ENERGY EFFICIENCY

ENERGY USE AND GHG EMISSIONS MANAGEMENT
PERCENTAGE OF FACILITIES AT A LEVEL A OR HIGHER 2006 AND 2012

Level A  Level AA  Level AAA

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%

2006  2012

Energy Use Management Systems
Energy Use Reporting Systems
Energy Intensity Performance Targets
GHG Emissions Management Systems
GHG Emissions Reporting Systems
GHG Emissions Intensity Performance Targets

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

Level A  Level AA  Level AAA

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%

2013

Energy Use and GHG Emissions Management Systems
Energy Use and GHG Emissions Reporting Systems
Energy and GHG Emissions Performance Targets
**Indicator 1: Energy Use and GHG Emissions Management Systems**

TSM seeks to confirm that all participating facilities are able to demonstrate that they have formal systems in place to manage energy use and GHG emissions, going beyond simply maintaining facility-level data. Facilities that achieve a Level A rating under indicator one of this protocol are able to demonstrate a commitment from senior management that recognizes energy and GHG management as important corporate priorities. Level A facilities also must have accountabilities and responsibilities assigned to operational managers and energy leaders, and energy awareness training programs 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, and engagement with communities of interest in education and outreach activities.

In 2013, 55% of facilities reported a Level A or higher for their energy use and GHG emissions management system. This is a significant increase since 2006 when 23% reported having a comprehensive energy management system and 13% reported having a comprehensive GHG emissions management system in place. As companies become more familiar with the revised protocol criteria, performance in this area is expected to improve.

**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 the protocol have developed and implemented a system to provide robust data to communities of interest and to inform internal decision makers. 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 to assess the effectiveness and adequacy of their reporting system, and the accuracy and reliability of the reported data. Facilities that go beyond the requirements of Level A will also publicly report their performance against specified targets.

The 2013 results for this indicator are strong, with 84% of facilities reporting a Level A or higher. This is a significant improvement from 2006, when 35% reported a Level A or higher for their energy use reporting system and 28% reported a Level A or higher for their GHG emissions reporting system.

**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 2013, 37% of facilities were assessed at a Level A or higher for this indicator.

The following case study highlights the collaboration between Teck Resources’ Highland Valley Copper operation and Thompson Rivers University on energy planning. This initiative reflects the intent of indicator 1, Level AAA, by demonstrating engagement with communities of interest and investment in research and development.
CASE STUDY: TECK RESOURCES LIMITED
Research Partnership on Energy Planning

Teck’s Highland Valley Copper operation, located in south central British Columbia, continues to push itself to further embed sustainability into its culture. Highland Valley Copper and Thompson Rivers University have partnered on the research and development of an energy modelling tool that will accurately predict energy performance based on mine planning inputs. In doing so, a site will not only be able to forecast its energy profile based on future mine plans, but this information can also be used to help influence mine plans based on energy considerations.

The project aims to develop key energy performance indicators for both Highland Valley Copper and the mining industry in general. The work aims to identify meaningful and manageable energy metrics, ones that differ from traditional approaches because they are derived using statistical and mathematical principles. The modelling tool’s ability to incorporate mine plan inputs and generate future energy profiles will provide information that can be used during the planning phases of mining to influence decisions earlier and in a more meaningful way in terms of energy use.

For more information on Teck’s research partnership with Thompson Rivers University, please refer to Teck’s 2013 sustainability report.

FOR MORE INFORMATION, PLEASE VISIT: WWW.TECK.COM.
REVISED ENERGY USE AND GHG EMISSIONS MANAGEMENT PROTOCOL

In 2010, MAC commissioned an independent consultant to review the TSM results for energy use and GHG emissions management to help us understand why the performance results were improving more slowly than expected. The conclusion of this review indicated that TSM performance is directly related to whether energy consumption is a material issue for facilities. Large energy consumers are more likely to develop comprehensive management systems for energy use and GHG emissions, and are likely required to report GHG emissions on an annual basis to a regulator. For smaller emitters, GHG emissions are not as material and, therefore, these facilities are not investing the same resources as larger emitters into their energy management programs.

Because of this review, MAC members evaluated the energy protocol to seek opportunities to incorporate materiality into the criteria. At the same time, members reviewed the protocol to ensure that it was a tool to drive performance improvements. This led to the development of a set of revised indicators for energy use and GHG emissions. In 2013, the membership implemented the revised energy use and GHG emissions management protocol.

The following elements have been incorporated into the revised protocol:

**Materiality**

The original energy use and GHG emissions management protocol required all MAC members to report TSM performance for all facilities, regardless of whether energy use and GHG emissions were considered material. The amended indicators incorporate materiality at two levels. The first is based on total energy use and GHG emissions thresholds; the second reflects specific fuel sources.

A threshold of 25kt CO₂e and 250,000 GJ has been set for both total energy consumption and GHG emissions that would excuse facilities below the threshold from publicly reporting on their management system and performance targets. Facilities below the threshold would still be required to report on their reporting system. MAC expects only a small number of facilities will fall below these thresholds.

The second element of materiality allows a facility to avoid including insignificant fuel sources in their management system if they establish a threshold to define material fuel sources.

The decision to incorporate materiality into this protocol is based on an analysis of MAC member companies’ TSM performance in relation to their total reported energy use and GHG emissions. The results of this analysis indicate that facilities that emit more than 50,000 tonnes of CO₂e have a stronger business driver to actively manage and reduce their emissions. On the other hand, emissions are a less material issue for facilities that are emitting less than 50,000 tonnes of CO₂e, and these facilities are likely to focus on other environmental, social and economic issues that are more significant to their operations. A lower threshold of 25,000 tonnes of CO₂e was chosen to align with the reporting threshold of several provinces. The decision to include materiality in this protocol, a unique inclusion for TSM, was made in consultation with the COI Advisory Panel.

**Business Unit Reporting**

TSM has always focused on facility-level reporting, but the new energy use and GHG emissions management protocol gives companies the flexibility to aggregate facilities into business units for the purposes of target setting. This decision was made out of recognition that climate change is a global issue, and companies should be encouraged to set performance targets that achieve the greatest reductions, regardless of geographic location.

**Performance Targets**

The original protocol required companies to set intensity improvement targets and did not recognize other types of targets. The revised protocol is more flexible in the types of acceptable targets, including total emissions and multi-year targets.
TSM AWARDS
Each year, MAC recognizes facility-level achievements in environmental and social responsibility with TSM Performance Awards. These awards are granted to facilities that have achieved high levels of TSM performance. To be eligible for a TSM Performance Award, a facility’s results must be externally verified.

TSM LEADERSHIP AWARD

A TSM Leadership Award is the highest form of the TSM Performance Awards and is granted only when a facility meets or exceeds a Level A ranking in their 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. The following facilities were granted TSM Leadership Awards for their 2013 performance:

- Glencore Nickel, Sudbury Integrated Nickel Operations
- Teck Resources Limited, Cardinal River Operations
- Teck Resources Limited, Trail Smelter

ABORIGINAL AND COMMUNITY OUTREACH

A TSM Performance Award for Aboriginal and Community Outreach is granted only when a facility achieves a Level A or higher across all four indicators in the Aboriginal and community outreach protocol. The following facilities were granted TSM Performance Awards for their performance in this area:

| Barrick Gold Corporation, Hemlo Mine | Glencore Zinc, Brunswick Smelter |
| De Beers Canada Inc., Snap Lake Mine | Glencore Zinc, Kidd Operations |
| De Beers Canada Inc., Victor Mine | Rio Tinto, Iron Ore Company of Canada, Labrador City |
| Glencore Copper, CCR Refinery | New Gold Inc., New Afton Mine |
| Glencore Copper, Horne Smelter | Syncrude Canada Ltd., Oil Sands Facility |
| Glencore Nickel, Raglan Mine | Teck Resources Limited, Cardinal River Operations |
| Glencore Nickel, Sudbury Integrated Nickel Operations | Teck Resources Limited, Trail Smelter |
| Glencore Zinc, CEZinc |  |
**CRISIS MANAGEMENT PLANNING**

A TSM Performance Award for Crisis Management Planning is granted only when a corporate head office or facility achieves “yes” across all three indicators in the crisis management planning protocol. The following corporate head offices and facilities were granted TSM Performance Awards for their performance in this area:

- Barrick Gold Corporation, Corporate
- Barrick Gold Corporation, Hemlo Mine
- De Beers Canada Inc., Corporate
- De Beers Canada Inc., Snap Lake Mine
- De Beers Canada Inc., Victor Mine
- Glencore Copper, CCR Refinery
- Glencore Copper, Corporate
- Glencore Nickel, Raglan Mine
- Glencore Nickel, Sudbury Integrated Nickel Operations
- Glencore Zinc, CEZinc
- Rio Tinto, Iron Ore Company of Canada, Corporate
- Rio Tinto, Iron Ore Company of Canada, Labrador City
- New Gold Inc., New Afton Mine
- New Gold Inc., Corporate
- Syncude Canada Ltd., Oil Sands Facility
- Teck Resources Limited, Cardinal River Operations
- Teck Resources Limited, Greenhills Operations
- Teck Resources Limited, Trail Smelter

**TAILINGS MANAGEMENT**

A TSM Performance Award for Tailings Management is granted only when a facility achieves a Level A or higher across all five indicators in the tailings management protocol. The following facilities were granted TSM Performance Awards for their performance in this area:

- ArcelorMittal Mining Canada, G.P., Mont Wright
- ArcelorMittal Mining Canada, G.P., Port Cartier
- De Beers Canada Inc., Snap Lake Mine
- De Beers Canada Inc., Victor Mine
- Glencore Nickel, Sudbury Integrated Nickel Operations
- Glencore Zinc, Kidd Operations
- Syncude Canada Ltd., Oil Sands Facility
- Teck Resources Limited, Cardinal River Operations

**WATER TESTING AT TECK’S GREENHILLS OPERATION, NEAR ELKFORD, BRITISH COLUMBIA.**
**ENERGY USE AND GHG EMISSIONS MANAGEMENT**

A TSM Performance Award for Energy Use and GHG Emissions Management is granted only when a facility achieves a Level A or higher across all three indicators in the energy use and GHG emissions management protocol. The following facilities were granted TSM Performance Awards for their performance in this area:

- ArcelorMittal Mining Canada, G.P., Mont Wright
- Barrick Gold Corporation, Hemlo Mine
- De Beers Canada Inc., Victor Mine
- Glencore Copper, CCR Refinery
- Glencore Copper, Horne Smelter
- Glencore Nickel, Raglan Mine
- Glencore Nickel, Sudbury Integrated Nickel Operations
- Glencore Zinc, Brunswick Smelter
- Rio Tinto, Diavik Diamond Mine
- Teck Resources, Cardinal River Operations
- Teck Resources Limited, Greenhills Operations
- Teck Resources Limited, Trail Smelter

**BIODIVERSITY CONSERVATION MANAGEMENT**

A TSM Performance Award for Biodiversity Conservation Management is granted only when a facility achieves a Level A or higher across all three indicators in the biodiversity conservation management protocol. The following facilities were granted TSM Performance Awards for their performance in this area:

- Glencore Nickel, Sudbury Integrated Nickel Operations
- Glencore Zinc, CEZinc
- Glencore Zinc, Brunswick Smelter
- Glencore Zinc, Kidd Operations
- Rio Tinto, Diavik Diamond Mine
- New Gold Inc., New Afton
- Syncude Canada Ltd., Oil Sands Facility
- Teck Resources Limited, Cardinal River Operations
- Teck Resources Limited, Greenhills Operations
- Teck Resources Limited, Trail Smelter

**SAFETY AND HEALTH**

A TSM Performance Award for Safety and Health is granted only when a facility achieves a Level A or higher across all five indicators in the safety and health protocol. The following facilities were granted TSM Performance Awards for their performance in this area:

- ArcelorMittal Mining Canada, G.P., Mont Wright
- ArcelorMittal Mining Canada, G.P., Port Cartier
- De Beers Canada Inc., Snap Lake Mine
- De Beers Canada Inc., Victor Mine
- Glencore Copper, CCR Refinery
- Glencore Copper, Horne Smelter
- Glencore Nickel, Raglan Mine
- Glencore Nickel, Sudbury Integrated Nickel Operations
- Glencore Zinc, CEZinc
- Glencore Zinc, Brunswick Smelter
- Glencore Zinc, Kidd Operations
- Rio Tinto, Iron Ore Company of Canada, Sept Îles
- Rio Tinto, Iron Ore Company of Canada, Labrador City
- Rio Tinto, Diavik Diamond Mine
- Teck Resources Limited, Cardinal River Operations
- Teck Resources Limited, Greenhills Operations
- Teck Resources Limited, Trail Smelter
TSM EXCELLENCE AWARDS

This year, MAC introduced two new awards: the TSM Community Engagement Award and the TSM Environmental Excellence Award. These new awards 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 AWARD – 2014 FINALISTS

WINNER: IAMGOLD Corporation: Village market gardening in Burkina Faso

Glencore Canada: Attracting and advancing Inuit talent in Northern Quebec

Rio Tinto/Iron Ore Company of Canada: Managing growth in Labrador West

Vale: Creating long-term economic prosperity in Thompson, Manitoba

TSM ENVIRONMENTAL EXCELLENCE AWARD – 2014 FINALISTS

WINNER: Syncrude Canada Ltd.: Innovating reclamation through fen wetlands in Northern Alberta

Dominion Diamond Corporation/Rio Tinto: Grizzly bear monitoring in the NWT

IAMGOLD Corporation: Improving biodiversity through village reforestation in Burkina Faso

Vale: Tracking real-time water quality for communities in Newfoundland and Labrador
2014 TSM EXCELLENCE AWARD WINNERS

For their innovative projects that raise the bar for corporate responsibility in the Canadian mining sector, Syncrude Canada and IAMGOLD Corporation were recognized with inaugural TSM Awards at the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Awards Gala in Vancouver in May 2014.

A total of 25 nominations were submitted by mining companies that participate in the TSM initiative. The selection committee, comprised of members from MAC’s independent national community of interest (i.e. stakeholder) 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. For more information about TSM or about the TSM Awards, visit www.mining.ca.

TSM Community Engagement Award 2014 Winner: IAMGOLD Corporation

In the Sahel region of Burkina Faso, home to IAMGOLD’s Essakane gold mine, the climate is desert-like, often reaching 45°C with very little rainfall. Populations largely rely on livestock breeding and gold mining for their livelihoods. To improve security and combat poverty in the region, IAMGOLD committed to develop alternate revenue sources for communities living near the mine site. Working with communities of interest, market gardening emerged as an opportunity to broaden revenue sources, while at the same time improve food security and nutrition.

In 2009, 100 women from the relocated 500-member Marganta community adopted the practice using a solar-powered well and water storage system provided by IAMGOLD. This innovation has greatly lightened the women’s workload and has allowed them to water garden beds without worrying about a lack of water. Two years later, drip irrigation technology was added, which has helped increase production without increasing water use. Vegetables can now be cultivated year-round, increasing the number of harvests to two to three per year instead of just one.

Since 2009, nearly 400 producers (more than 50% women) have earned additional revenue through market gardening, and many have doubled their annual income. What’s more, there has been an increase in people choosing gardening over gold panning. The project’s success has also generated much interest by neighbouring villages and other mining companies who would like to replicate it in other regions.
TSM Environmental Excellence Award 2014 Winner: Syncrude Canada

In the boreal forests of Northern Alberta where Syncrude has a large oil sands mining operation, fen wetlands are commonplace and, in nature, can take thousands of years to establish. This peat-forming, groundwater-fed wetland became Syncrude’s source of inspiration as it looked to transform a tailings structure into a thriving wetland in 2007.

With very little information on fen reclamation to refer to, Syncrude established the interdisciplinary Sandhill Fen Technical Advisory Panel to create something that had never been done before, and the Sandhill Fen Research Watershed Initiative was born. The watershed was developed on 52 hectares of sand-capped soft tailings on a portion of what was once a 60-metre deep mine. In all, more than 28 kinds of wetland plants were introduced and vegetation was selected to mirror those in naturally-occurring fens in the area. Construction of the watershed was completed in 2012 and will be closely monitored over the next 10 to 20 years.

This project is still in its early years, but results are encouraging. Peat studies show that it is possible to transplant live peat from a natural environment and grow it in a newly-constructed area. Additionally, a number of native plants have successfully taken seed and are growing on their own without having been planted. The information being gathered is invaluable towards improving wetland reclamation best practices for Syncrude and the oil sands industry as a whole.

FOR MORE INFORMATION ABOUT TSM OR ABOUT THE TSM AWARDS, VISIT WWW.MINING.CA.
INTERNATIONAL INITIATIVES
INTERNATIONAL SOCIAL RESPONSIBILITY

Despite being mandatory for Canadian facilities, a growing number of MAC members are applying TSM standards and publicly reporting performance for their international facilities, including First Quantum, Agnico Eagle Mines and IAMGOLD. 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 53 summarizes the implementation of these standards globally.
### INTERNATIONAL INITIATIVES

<table>
<thead>
<tr>
<th>MAC MEMBER COMPANY</th>
<th>APPLICATION OF INTERNATIONAL STANDARDS AND PROGRAMS</th>
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<tbody>
<tr>
<td>Barrick Gold Corporation</td>
<td>X</td>
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<tr>
<td>IAMGOLD Corporation</td>
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<td>Kinross Gold Corporation</td>
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<td>HudBay Minerals Inc.**</td>
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<td>First Quantum Minerals Inc.</td>
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<td>Teck Resources Limited **</td>
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<td>Vale (Base Metals)</td>
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<tr>
<td>New Gold Inc.**</td>
<td>X</td>
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<tr>
<td>Eldorado Gold</td>
<td>X</td>
</tr>
</tbody>
</table>

**Companies/Business Units Headquartered in Canada with International Operations**

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

**Companies Headquartered Outside of Canada with Canadian Operations**

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

*Applied at international operating facilities.

**TSM is applied at international facilities, but results are not reported publicly.
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 2013 was on the completion of a framework for mandatory disclosure of payments made to governments derived from mining activities. The committee also partnered with the Office of the Extractive Sector CSR Counsellor to provide guidance to address common implementation challenges with site-level grievance mechanisms.

Resource Revenue Transparency Working Group
Since late 2012, MAC has been working in partnership with Publish What You Pay–Canada, the Natural Resource 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, the members have worked towards a common goal of establishing greater transparency in the mining industry in Canada and overseas. Ultimately, the intent is to provide communities with the financial information they need to hold their governments accountable for the responsible use of revenues collected from mining activities. The initiative involved high levels of collaboration and consultation with stakeholders over a period of a year and a half. The structure of the working group provided a platform for industry and civil society to build a mandatory disclosure framework that reflected the needs and perspectives of both parties.

The final framework was completed and endorsed by the four participating organizations before year-end and was formally announced in January 2014. The framework includes recommendations on payment categories and thresholds, project definitions, reporting format, and other critical areas for the implementation of mandatory reporting requirements. A centrepiece of the framework is a strong focus on equivalency with other jurisdictions, such as the European Union and the United States. This would allow companies reporting under other jurisdictions’ rules to submit their report to Canadian authorities to satisfy their reporting obligations in Canada. The framework also states a clear preference for these reporting requirements to be implemented through provincial securities regulation.

It is important to emphasize that this framework was developed specifically for mining and does not take into account issues that are unique to other sectors, such as oil and gas. As development of the framework proceeded throughout 2013, different perspectives emerged between mining and oil and gas, particularly with regard to project-level disclosure. It became increasingly clear that structural distinctions between the two sectors exist and should be respected, most notably:

- Much of the world’s oil and gas reserves are controlled by state-owned enterprises (80%), unlike mining.
- Oil and gas tenures are generally granted as a result of competitive bidding processes, unlike mining.
- When the two points above are combined, disclosure of payments by private sector companies places them at a competitive disadvantage with state-owned enterprises not subject to the mandatory disclosure rules.
- Oil and gas projects are more complicated to delineate than are mines.
- Canadian securities regulations do provide for separate rules for mining and oil and gas.

In respecting that there may be a need for separate solutions for mining and oil and gas in some areas, and because the working group did not include representatives from the oil and gas sector, it was necessary for the Resource Revenue Transparency Working Group to focus on a set of recommendations that are distinctly for the mining sector.

Going forward, the working group will engage with provincial governments and securities regulators to build support for the framework’s adoption, as the government works to fulfill Prime Minister Harper’s 2013 commitment to adopt a transparency standard by spring 2015.
Human Rights — Remedy and Site-Level Grievance Mechanisms
In June 2013, the ISR Committee expressed interest in undertaking a project that would contribute to best practices in the implementation of site-level grievance and community response mechanisms.

MAC already contributes to the body of practice in community response mechanisms through indicator 3 of the Aboriginal and community outreach protocol. However, it was felt that MAC could further contribute by addressing some gaps in the literature. Members of the ISR Committee, in discussion with the CSR Counsellor, concluded that there were common barriers preventing some mining companies from establishing effective site-level mechanisms. The committee believed it could help address this issue by documenting the combined experience of members.

The ISR Committee and the Office of the Extractive Sector CSR Counsellor initiated a joint project to help raise the awareness of site-level grievance mechanisms. The project also aims to help companies overcome common implementation challenges at the mine-site level, which include:

• Challenges in building awareness of the mechanism and trust in communities.

• Challenges in securing internal buy-in at the site level from the people that engage with the community and from other key departments.

• Challenges in gaining consistency of practice across a diverse range of sites.

In November 2013, the Office of the Extractive Sector CSR Counsellor and the ISR Committee held a workshop facilitated by Dr. Craig Ford. Participants included representatives of MAC and the PDAC, staff of the Office of the Extractive Sector CSR Counsellor, a member of the UN Working Group on Human Rights, and a former representative of the IFC Compliance Advisor and Ombudsman. The outcome of this workshop was a draft paper entitled, “A Practical Design and Implementation Guide for Site-Level Community Response Mechanisms in the Resource Development Industry.”

The guide attempts to document and bring consistency to the internal processes of community relations management systems, specifically related to community concerns. The guide positions “grievances” within the larger context of community relations “concerns” and “incidents.” In this way, community relations concerns and incidents fit into a spectrum of events that span a range of severity and potential materiality, both from the perspective of the community and the company.

In the first half of 2014, the draft guide was circulated to experts in the field of dispute resolution and grievance mechanisms for review, after which it will be finalized by the Office of the Extractive Sector CSR Counsellor and MAC for public release.

VILLAGE SCHOOL NEAR IAMGOLD’S ESSAKANE MINE IN BURKINA FASO.
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 2013, this number grew to 62 facilities. This section includes externally verified results for seven companies (ArcelorMittal Mining Canada G.P., Barrick Gold Corporation, De Beers Canada, Rio Tinto, Syncrude Canada, Teck Resources* and Glencore).

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**

*Teck Resources Limited conducts external verification for a sample of its facilities on an annual basis. In 2013, Teck’s Cardinal River operations, Greenhills operations and Trail smelter were externally verified.*
Agnico Eagle is a Canadian-based gold producer with mines and exploration properties in Canada, Finland, Mexico and the United States. In December 2010, Agnico Eagle became a MAC member and fully endorsed the TSM initiative by implementing the program at its domestic and international facilities.

Over the last year, Agnico Eagle's facilities have demonstrated improvements in the areas of tailings management, safety and health, and crisis management planning. The company has also identified opportunities to improve performance in the areas of biodiversity conservation management and energy use and GHG emissions management. Agnico Eagle aims to achieve an overall Level A rating at all of its facilities. In 2013, Agnico Eagle continued to train all of its divisions in TSM implementation and conducted an internal audit of the program. The company’s self-assessment against the TSM indicators is presented in this report. Agnico Eagle will undertake an external verification of its TSM performance by the beginning of 2015. Agnico Eagle took steps to further integrate its sustainable development program into all aspects of its business. The following highlights where the program has made a difference and, in some cases, where the company has encountered challenges:

- **Sustainable Development Policy:** In 2013, Agnico Eagle continued to promote its new, integrated sustainable development policy. This policy articulates Agnico Eagle’s four fundamental values of sustainable development: respect employees; protect the environment; operate safely; and respect communities.

- **Best 50 Corporate Citizens in Canada:** In 2013, Agnico Eagle was ranked by Corporate Knights magazine as one of Canada’s top 50 corporate citizens for the third year in a row, which is defined as a company that fulfills its part of the social contract, while developing innovative solutions to the pressing social and environmental challenges of our time.

- **GHG emissions intensity:** In 2013, Agnico Eagle’s average direct GHG emissions intensity (the tonnes of CO₂ equivalent per tonne of ore processed) for all of its operating mines was 0.0285 tonnes, a 3% reduction from 0.0293 tonnes in 2012.

- **Combined lost time accident frequency:** Agnico Eagle’s overall health and safety performance achieved a combined lost time accident (LTA) frequency of 1.70, which is substantially below its target rate of 2.8 and the company’s lowest ever combined LTA rate.

- **Responsible Mining Management System:** In 2013, Agnico Eagle continued implementing its new integrated Responsible Mining Management System (RMMS). This integration will be done through the development and
implementation of a formal Health, Safety, Environment and Social Acceptability Management System. The RMMS aims to further promote a culture of excellence that encourages employees to continuously improve their skills and to not only meet but exceed the regulatory requirements for health, safety and the environment. The system will be consistent with the ISO 14001 standard for environmental management systems and the OHSAS 18001 standard for health and safety management systems. System documentation will be supported by Intelex software. As a participant in the following groups and initiatives, Agnico Eagle has designed the RMMS to ensure that the following compliance requirements and industry standards are met: Carbon Disclosure Project, Global Reporting Initiative, International Cyanide Management Code, TSM initiative and Conflict-Free Gold Standard.

Although the RMMS will be based on ISO 14001 and OHSAS 18001, Agnico Eagle will not seek certification under these standards.

**Socially Responsible Company:** In 2013, Agnico Eagle Mexico was recognized for the sixth consecutive year by the Chihuahuan business foundation, Fundación del Empresariado Chihuahuense, A.C., with an award of distinction for being a socially responsible company. Agnico Eagle Mexico was also recognized by the Canadian Chamber of Commerce in Mexico with the 2013 Outstanding Business Award for Corporate Social Responsibility.

**Silver Hard Hat:** The Mexican Chamber of Mines awarded Agnico Eagle's Pinos Altos mine the Jorge Rangel Zamorano Silver Hard Hat award for its outstanding safety performance in 2012. It won in the category of underground mine with more than 500 workers. This is the second year in a row and third time since 2009 that the Pinos Altos team has achieved this award. It is the single-most important national recognition for mine safety in Mexico.

**Clean Industry:** Agnico Eagle's Creston Mascota mine was certified, and the Pinos Altos mine was recertified, as Industria Limpia (Clean Industry) by La Procuraduría Federal de Protección al Ambiente (the equivalent of the US Environmental Protection Agency in Mexico). This certificate, obtained following a rigorous audit, recognizes the excellence of environmental management at Pinos Altos.

**Safety First:** The 2012 Award of Excellence in Safety was presented to Agnico Eagle by the Quebec Mining Association in June 2013. The O’Connell trophies are given out annually to the organizations with the most noticeable performances and improvements in the field of mine safety in Quebec.

- The Goldex mine took home the O’Connell trophy in the category of combined performance and improvements for an underground operation with less than 400,000 hours worked.
- The LaRonde mine was awarded the O’Connell trophy in the category of combined performance and improvements for an underground operation with 400,000 hours worked, or more.
- The Quebec Mining Association recognized 24 supervisors from Agnico Eagle’s LaRonde, Lapa and Goldex mines for achieving 50,000 hours and more without any compensable accidents on their work teams during the period from July 1, 2012 to June 30, 2013.
- Agnico Eagle’s Goldex mine rescue team won the provincial championships at the 51st Mine Rescue Competition and also won Best Operating Team and Best Performance During the Mission.

As part of Agnico Eagle’s overall commitment to continuous improvement, the company has steadily increased its presence on national, international and industry-specific boards and organizations. These organizations help Agnico Eagle improve and measure its performance by providing research and guidance on the latest industry standards and global best practices.

**FOR MORE INFORMATION, PLEASE VISIT:** www.agnicoeagle.com.
CRISIS MANAGEMENT PLANNING ASSESSMENT

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ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

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

*Results not externally verified.*
### SAFETY AND HEALTH ASSESSMENT

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### TAILINGS MANAGEMENT ASSESSMENT

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TOWARDS SUSTAINABLE MINING PROGRESS REPORT

MEASURING COMPANY PERFORMANCE

AGNICO EAGLE MINES LIMITED

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 USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS
COMPANY PROFILE - ARCELMITTAL MINING CANADA G.P.

ArcelorMittal is one of Canada’s leading suppliers of iron ore to steel markets around the world. The company is responsible for nearly 40% of Canada’s total production and is active in the mining and primary processing sectors. In addition to its mining complex in Mont-Wright, Quebec, ArcelorMittal operates a 420-kilometre railroad, a pellet plant, a private port and rail workshops in Port-Cartier, which is also home to the company’s administrative headquarters.

As a MAC member, ArcelorMittal is involved in an improvement process as part of the TSM initiative and is continuously strengthening the enforcement of various protocols. The company has also achieved ISO 14001:2004 certification for its environmental management systems and ISO 9001:2008 certification for its quality management systems. ArcelorMittal is also committed to employee health and safety and the environment. The company’s occupational health and safety system was certified to the OHSAS 18001:2007 standard in June 2011. In addition, ArcelorMittal brought in its Courageous Leadership initiative, aimed at changing attitudes in the workplace and increasing rigour in all management processes. These initiatives helped to improve performance significantly this year by reducing accident frequency, and ArcelorMittal expects to see continued positive results in the years to come.

The company is maintaining its efforts to further improve overall energy efficiency in its pellet plant to meet expected future regulations for GHG emissions. A dedicated energy efficiency team has carried out projects that have enabled the facility to reduce both costs and GHG emissions. In the medium term, efforts by the research and development team should allow the facility to use new energy sources that will improve efficiency, while further reducing GHG emissions.

ArcelorMittal has been highly involved in the community for more than 50 years, and this involvement continues today among communities of interest in a number of ways. In addition to its numerous donations and sponsorships, the company has contributed $800,000 in funding to the construction of the Pavillon de Technologie Minérale at the Cégep de Sept-Îles. The company’s funding committee has also directly supported a number of initiatives in the Fermont community, contributing $150,000 in total. ArcelorMittal is also overseeing the joint implementation of an impact and benefit agreement with the Uashat mak Mani-Utenam Inuit community.

Now, more than ever, the company is committed to a goal of improvement as part of the TSM initiative.

FOR MORE INFORMATION, PLEASE VISIT: WWW.ARCELMITTAL.COM.
## MEASURING COMPANY PERFORMANCE

### CRISIS MANAGEMENT PLANNING ASSESSMENT

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### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- Community of Interest (COI) Identification
- Effect COI Engagement and Dialogue
- COI Response Mechanism
- Reporting

### SAFETY AND HEALTH ASSESSMENT

- Policy, Commitment and Accountability
- Monitoring and Reporting
- Planning, Implementation and Operation
- Performance
- Training, Behaviour and Culture
MEASURING COMPANY 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

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
Avalon Rare Metals Inc. (Avalon) is a mineral development company focused on rare metals deposits in Canada. Avalon’s 100% owned flagship Nechalacho Rare Earth Elements Project at Thor Lake, NWT, is the most advanced large heavy rare earth elements development project in the world outside China. Project engineering, permitting and product marketing initiatives are well underway.

Avalon believes a strong sustainable framework is fundamental to its long-term success and has implemented MAC’s TSM guiding principles in order to meet or exceed industry best practices and continuously improve on its social, environmental, health and safety performance. These principles help to ensure that key mining risks are managed responsibly at Avalon’s exploration properties and facilities. Avalon has demonstrated leadership among junior companies in the mineral development sector by producing an annual GRI-compliant Sustainability Report which includes Avalon’s voluntary annual TSM self-assessment which can be found at www.avalonraremetals.com/sustainability.

Highlights of Avalon’s voluntary 2013 TSM self-assessment are:

Safety and Health
Avalon formally adopted safety and health as a core company value in 2012 and continued to develop a safety culture embraced by management, employees, contractors and service providers.

In 2013, Avalon also developed a Health, Safety and Environment (HSE) management plan and Contractor HSE Specification Documents in order to embed company commitment and accountability for health and safety.

Avalon has self-assessed itself as a Level AA in health and safety training, behaviour and culture as well as monitoring and reporting, due in part to implementing leading indicator monitoring in its exploration activities. As a result, safety performance has remained excellent.

Energy Use and GHG Emissions Management
In 2013, Avalon had average grades in its energy use and GHG emissions management. To reduce energy use at Avalon’s Nechalacho Project and reduce GHG emissions, Avalon improved upon its energy data collection practices to identify areas for improved energy usage. The company also implemented solar panels to complement diesel power and installed several energy efficient heaters and battery power back-up systems to store energy.
Company Profile: Avalon Rare Metals Inc.

Average grades reflect Avalon’s high expectation for GHG management systems that, while well on their way, were not completed or finalized during the reporting period.

Aboriginal and Community Outreach
Avalon is proud of its community outreach performance for all of its active projects and has implemented mechanisms to address concerns of the communities through committee participation, agreements and regular project updates.

Throughout 2013, Avalon provided Nechalacho Project updates through site and community visits and participated in environmental management plan consultations with community representatives. The company is also developing engagement plans in consultation with its Aboriginal partners, and has commenced negotiation of a Socio-Economic Agreement with the Government of the NWT.

Biodiversity Conservation Management
During 2013, Avalon drafted both a Wildlife Habitat Protection Plan and Aquatic Effects Monitoring Plan at the Nechalacho Project. The wildlife plan was initiated during the year and a tracking log for biodiversity conservation reporting was introduced. Grades were also mid-level in this category as Avalon focused on forward looking, facility-level planning. This includes preparation of a Wildlife Effects Monitoring plan.

For more information, please visit: www.avalonraremetals.com.
**MEASURING COMPANY PERFORMANCE**  
**AVALON RARE METALS INC.**

### CRISIS MANAGEMENT PLANNING ASSESSMENT

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### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

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

![Bar chart](chart.png)

### SAFETY AND HEALTH ASSESSMENT

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

![Bar chart](chart.png)

*Results not externally verified.*
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
Barrick Gold Corporation is the world’s leading gold company operating on four continents with advanced exploration and development projects in North America, South America, Africa, Australia-Pacific and Asia. The company is headquartered in Toronto, Ontario.

Barrick’s Hemlo operation is located 46 kilometres east of Marathon, Ontario, and has produced gold continuously since 1985. The operation includes the David Bell underground mine, and Williams, an underground and open-pit mine. Both mines share a processing facility. Before 2010, the Hemlo operation was a 50-50 joint venture until Barrick acquired full ownership in 2010.

Although Hemlo was prepared to begin a staged closure in 2010, the operation has entered a new phase of its productive life. With the purchase of adjacent lands that increased the site’s mineable reserves, the life of the Williams mine has been extended until 2018, with the possibility of additional expansions. The David Bell mine will cease production in 2014.

Before these developments, Hemlo's TSM goal, given the expected closure of the Hemlo site, was to achieve and maintain a minimum of a Level A within each protocol. Now, the operation’s extended mine life provides new opportunities to enhance Hemlo’s practices and operating standards. The operation is now seeking higher rankings by continuing to be diligent and by applying TSM and other international practices and standards.

Hemlo’s commitment to improving its performance is demonstrated by the site’s certification under the International Cyanide Management Institute’s independent third-party audit, which acknowledges that Hemlo meets all performance requirements of the Cyanide Code. This certification, coupled with Hemlo’s ISO 14001 environmental management system certification, reinforces Barrick’s commitment to the environment and continued sustainability.

The Hemlo operation continues to expand its external outreach and partnerships. The site is 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 Mobert First Nation to receive training. The Hemlo operation continues to work on several initiatives with First Nation communities and other identified communities of interest. The Hemlo operation is committed to continuous improvement in all aspects of its operation, including its engagement of all stakeholders and interested parties.

FOR MORE INFORMATION, PLEASE VISIT: WWW.BARRICK.COM.
MEASURING COMPANY PERFORMANCE

BARRICK GOLD CORPORATION

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ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- 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
BARRICK GOLD CORPORATION

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

HEMLO

Biodiversity Conservation Management Assessment

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

HEMLO

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
Cameco Corporation is one of the world’s largest uranium producers. Nuclear energy plants around the world use its uranium products to generate one of the cleanest sources of electricity available today. Cameco is committed to delivering its products safely and responsibly. As part of its commitment to responsible and sustainable development, the company reports its performance through the TSM initiative and uses the results to improve its management systems.

Cameco is recognized as a global leader in corporate social responsibility and is committed to doing what is right to achieve the following:

- A safe, healthy and rewarding workplace
- A clean environment
- Supportive communities
- Outstanding financial performance

These four measures of success will determine the company’s future growth and long-term standing as a responsible corporate citizen in everything it does.

The safety of its workers and the public is paramount at every stage of Cameco’s operations from exploration, development and operation, through decommissioning and reclamation. Keeping risks as low as reasonably achievable and sending workers home safely at the end of every shift or work rotation is the most important thing Cameco does each day.

Attracting and developing skilled employees in a highly competitive sector, offering a workplace that keeps them engaged, and encouraging a sense of community, contribution and belonging are also critically important. Cameco takes employee engagement and development seriously and it actively invests in both.

Cameco needs the trust and support of communities, indigenous people living in communities that are closest geographically to its operations, and of governments and regulators. Stakeholder support is essential to Cameco’s operations, and the company earns it by being a good corporate citizen. Cameco strives to engage proactively with
stakeholders in a variety of ways and respond to questions and concerns in a timely, transparent and culturally appropriate manner.

Cameco is the number one industrial employer of Aboriginal people in Canada. About half of its northern mine site employees are Residents of Northern Saskatchewan (RSNs), with nearly 90% of these RSN workers self-declaring as being Aboriginal. As well, 70% of the services Cameco’s Saskatchewan operations use comes from northern businesses, many of which are Métis or First Nations owned. These businesses also make it their policy to ensure they hire Aboriginal people from northern communities.

Cameco’s efforts have not gone unnoticed. Cameco has been honoured for progressive Aboriginal relations three times by the Canadian Council for Aboriginal Business in recognition of its commitment to recruit, retain and advance Métis and First Nations employees within the organization. However, supporting northern communities goes beyond supporting businesses and creating jobs. It also means investing in the long-term sustainability of the region through strategic investments in the future.

Cameco operates its business with respect and care for the local and global environment. The company strives to be a leader in environmental best practices and performance by complying with regulatory requirements and moving beyond them where possible. Cameco integrates environmental leadership into everything it does. The company tracks its progress by monitoring its impacts on air, water and land near its operations, by measuring the amount of energy it uses and by the amount of waste it generates. The company uses this information to help identify and prioritize opportunities to improve. Cameco designs its facilities to minimize or remove environmental impact during operations, and works to return the site to a condition that is safe and useful for people and nature when it is done.

FOR MORE INFORMATION, PLEASE VISIT: WWW.CAMECO.COM.
**CRISIS MANAGEMENT PLANNING ASSESSMENT**

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**ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT**

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

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

*Results externally verified in 2012.*
MEASURING COMPANY 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

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
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. The company is also the majority partner in the Gahcho Kué project in the Northwest Territories, which may become De Beers Canada's third operation in the future.

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.

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 and the Extractive Industries Transparency Initiative.

The following is a summary of TSM results for De Beers Canada in 2013, which were externally verified.

**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 achieved a Level AA for its energy use and GHG emissions management systems and its energy and GHG emissions performance targets. Improvements were made to the energy use and GHG reporting system, which was assessed at Level A.

Snap Lake’s energy use and GHG emissions reporting system was also assessed at Level A. The facility was assessed at a Level B for its energy use and GHG emissions management system and performance targets. The other two indicators for this protocol were assessed at Level B. The factor with the greatest impact on fuel consumption at Snap Lake is external temperature, and in December, the mine consumed approximately 1% more fuel than was forecasted. This resulted in the mine’s energy consumption and GHG emissions just falling short of its year-end intensity targets. Snap Lake has commissioned an engineering study to quantify the opportunity of using waste heat from the powerhouse to preheat ventilation air. Additional opportunities for improvement include integrating energy management into the mine’s operating procedures and establishing departmental energy budgets.
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 undertook 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 demonstrated improvements in biodiversity conservation since 2012. The Victor mine achieved a Level A for facility-level biodiversity conservation planning and implementation. Snap Lake achieved a Level A for corporate biodiversity commitment, accountability and communications.

The Victor mine has completed a detailed review of existing programs compared to TSM performance requirements. Overall, the review concluded that only minor adjustments are required to ensure that risks to biodiversity and threatened species are adequately monitored in accordance with TSM. This is due to the mine’s extensive monitoring programs, which are already in place for various permits, environmental assessment follow-up programs and research initiatives. Opportunities for improvement include increasing communication with communities of interest and making information about the mine’s performance with respect to biodiversity conservation publicly available.

Snap Lake has also established comprehensive environmental monitoring programs as required by various licences, permits and environmental assessment follow-up programs. Opportunities for improvement include 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. Both mines were assessed at Level AAA with the exception of the performance indicator at Snap Lake, which was assessed at Level AA.

FOR MORE INFORMATION, PLEASE VISIT: WWW.CANADA.DEBEERSGROUP.COM.
## MEASURING COMPANY PERFORMANCE

### DE BEERS CANADA INC.

#### CRISIS MANAGEMENT PLANNING ASSESSMENT

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<th>Facility</th>
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<td>VICTOR MINE</td>
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#### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- 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

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**SNAP LAKE MINE**

- AAA
- AA
- A
- B
- C

**VICTOR MINE**

- AAA
- AA
- A
- B
- C

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**Externally Verified**
TOWARDS SUSTAINABLE MINING PROGRESS REPORT

MEASURING COMPANY PERFORMANCE

DE BEERS CANADA INC.

TAILINGS MANAGEMENT ASSESSMENT
- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT

SNAP LAKE MINE

VICTOR MINE

Biodiversity Conservation Management Assessment
- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING

SNAP LAKE MINE

VICTOR MINE

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

SNAP LAKE MINE

VICTOR MINE
The year 2013 marked a year of transition for the Ekati Diamond Mine. BHP Billiton, owner of the mine since operations began on October 14, 1998, publicly announced its decision to sell on November 13, 2012. On April 10, 2013, Dominion Diamond Corporation completed the acquisition of the interests of BHP Billiton Canada Inc. and its various affiliates in the Ekati mine operation.

Dominion Diamond is a Canadian company headquartered in Yellowknife, Northwest Territories. The company operates the Ekati Diamond Mine, in which it owns a 80% controlling interest, as well as a 58.8% interest in the surrounding areas that contain prospective resources. The 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. Dominion Diamond also owns 40% of the Diavik Diamond Mine. Diavik Diamond Mines Inc., a subsidiary of Rio Tinto plc, operates this mine. TSM results for Diavik are provided by Rio Tinto and can be found on page 113 of this report.

At Dominion Diamond, performance means delivering sustainable growth by investing in the future. That 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 the company’s 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.

Tailings management and Aboriginal and community outreach are two areas where the Ekati mine has consistently scored high, and that trend continued under Dominion Diamond in 2013. The company has been meeting regularly with stakeholders to share information about its operations and future plans and to hear feedback on decisions that
COMPANY PROFILE

DOMINION DIAMOND CORPORATION

may affect them. The Ekati mine has created community development plans that facilitate a sharp focus on where its efforts will make the most difference in communities. While the company inherited the IBAs, which are in place until the end of mine life, Dominion Diamond is in dialogue with its IBA partners to explore additional community development initiatives above and beyond the original agreements.

Considerable efforts continue in the stewardship of the environment. The results achieved in 2013 verify that those efforts are on track in terms of understanding and conserving biodiversity, effectively disposing of processed kimberlite, and managing associated water quality.

In June 2013, the Ekati Mine Rescue Team competed at the Mine Rescue Competition in Yellowknife. The team captured the overall award for surface and underground mining, winning in eight of 13 categories (four for surface, and four for underground). In September 2013, the team competed in the 11th biennial National Western Region Mine Rescue Competition in Fernie, British Columbia.

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 make developments to the Ekati mine’s socio-economic 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.

COMMUNITY TOUR AT DOMINION DIAMOND’S EKATI DIAMOND MINE LOCATED IN THE LAC DE GRAS REGION OF THE NORTHWEST TERRITORIES.
**MEASURING COMPANY PERFORMANCE**

**DOMINION DIAMOND CORPORATION**

### CRISIS MANAGEMENT PLANNING ASSESSMENT

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### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

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

AAA  
AA  
A  
B  
C  

EKATI DIAMOND MINE

### SAFETY AND HEALTH ASSESSMENT

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

AAA  
AA  
A  
B  
C  

EKATI DIAMOND MINE

*Results externally verified in 2012.*
MEASURING COMPANY 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

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
First Quantum Minerals is an international mining company, which has grown through a combination of exploration, development, operation and acquisition of mining projects or companies with interests in mining projects. The company produces copper, gold, nickel, platinum, palladium, zinc and sulphuric acid. As of 2013, First Quantum’s operations and development projects were located in Zambia, Mauritania, Spain, Turkey, Finland, Australia, Panama and Peru. The company has closed operations in North America.

In 2013, First Quantum acquired Inmet Mining. As a result of this acquisition and its closed operations in Canada, First Quantum joined MAC and continues to implement the ongoing TSM program in place before the acquisition. First Quantum’s TSM reporting consists of its six closed properties in North America, a development project in Panama, and its operations in Turkey, Spain and Finland.

For First Quantum, corporate responsibility means rolling up its sleeves and doing all it can to ensure its operations have a net positive impact. The company demonstrates its values by acting upon them, because it believes that best practices mean nothing if not put into practice. First Quantum considers tangible evidence of improvement in the communities where it does business, in the surrounding environment and in the lives of its employees to be the only true measure of success. TSM is one of the tools First Quantum uses to identify gaps and manage risk. In 2013, it scored well on crisis management planning and tailings management, safety and health, and Aboriginal and community outreach. The company’s performance in biodiversity conservation management, energy use and GHG emissions management is also improving. In 2013, several areas of First Quantum’s operations improved to Level AAA (the highest rating) because of third-party reviews of its operations and systems.

First Quantum’s Biodiversity Action Plan at Cobre Panama is particularly noteworthy. It includes supporting landscape-scale conservation, conservation management of species of concern and reforestation. At the landscape level, Cobre Panama has committed to supporting the conservation of approximately 290,000 hectares of rainforest, which is more than 40 times the size of the project’s footprint. At the species level, studies have expanded the scientific understanding of the distribution of species of concern in the area, and several projects are ongoing to protect these local species. The Biodiversity Action Plan also covers additional habitat creation, conservation capacity building within Panama, and working with national and international organizations on biodiversity and conservation.

FOR MORE INFORMATION, PLEASE VISIT: WWW.FIRST-QUANTUM.COM.
### Measuring Company Performance

**First Quantum Minerals Ltd.**

#### Crisis Management Planning Assessment

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#### Aboriginal and Community Outreach Assessment

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<th>Effective COI Engagement and Dialogue</th>
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*Results externally verified in 2012.*
ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT (CONTINUED)

- Community of Interest (COI) Identification
- Effective COI Engagement and Dialogue
- COI Response Mechanism
- Reporting

STURGEON LAKE (CLOSED)
- Policy, Commitment and Accountability
- Monitoring and Reporting
- Planning, Implementation and Operation
- Performance
- Training, Behaviour and Culture

ÇAYELI MINE
- Policy, Commitment and Accountability
- Monitoring and Reporting
- Planning, Implementation and Operation
- Performance
- Training, Behaviour and Culture

NORBEC (CLOSED)
- Policy, Commitment and Accountability
- Monitoring and Reporting
- Planning, Implementation and Operation
- Performance
- Training, Behaviour and Culture

PYHÄSALMI MINE
- Policy, Commitment and Accountability
- Monitoring and Reporting
- Planning, Implementation and Operation
- Performance
- Training, Behaviour and Culture

SAMATOSUM (CLOSED)
- Policy, Commitment and Accountability
- Monitoring and Reporting
- Planning, Implementation and Operation
- Performance
- Training, Behaviour and Culture

TOWARDS SUSTAINABLE MINING PROGRESS REPORT

FIRST QUANTUM MINERALS LTD.
# Measuring Company Performance

**First Quantum Minerals Ltd.**

### Safety and Health Assessment (Continued)

- **Policy, Commitment and Accountability**
- **Planning, Implementation and Operation**
- **Training, Behaviour and Culture**
- **Monitoring and Reporting**
- **Performance**

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### 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**

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MEASURING COMPANY PERFORMANCE

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

AAA
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STURGEON LAKE (CLOSED)
TROILUS
WINSTON LAKE (CLOSED)

BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- Corporate Biodiversity Conservation Policy, Accountability and Communications
- Facility-Level Biodiversity Conservation Planning and Implementation
- Biodiversity Conservation Reporting

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COBRE LAS CRUCES
COBRE PANAMA
COPPER RANG COMPANY (CLOSED)
NORBEC (CLOSED)

AAA
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A
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PYHÄSALMI MINE
SAMATOSUM (CLOSED)
STURGEON LAKE (CLOSED)
TROILUS
WINSTON LAKE (CLOSED)
MEASURING COMPANY PERFORMANCE

FIRST QUANTUM MINERALS LTD.

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

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COBRE LAS CRUCES
COBRE PANAMA
COPPER RANGE COMPANY (CLOSED)

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NORBEC (CLOSED)
PYHÄSALMI MINE
SAMATOSUM (CLOSED)

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STURGEON LAKE (CLOSED)
TROILUS
WINSTON LAKE (CLOSED)
Glencore is one of the world’s largest producers and marketers of bulk commodities, supplying the global industry with natural resources and their related products. Its operations comprise over 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.

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.

Copper production is vital to society. Copper is used extensively in energy generation and distribution, building products, electronic equipment and a vast array of everyday objects from cell phones to kitchen utensils. With
its growing use in green technologies and antimicrobial application, as well as its ability to be recycled, copper is playing an important role in creating a sustainable future.

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. However, testing at the site level needs to occur twice annually instead of once.

Aboriginal and Community Outreach: At CCR, effective community of interest (COI) engagement and dialogue increased from Level AA to Level AAA. This improvement is the result of active and meaningful engagement and communications with le Comité des Citoyens de Montréal-Est, which has occurred since 1992.

Biodiversity Conservation Management: Horne Smelter’s results increased from Level C to Level B as a result of monthly reporting of toxicity to daphnia and on regular reporting to senior management of various issues related to biodiversity. CCR demonstrated its commitment by including biodiversity conservation in presentations and videos for the 2013 open house, which led to the achievement of a Level A in its external verification.

Health and Safety: External audits at CCR and Horne Smelter confirm that the health and safety policy is consistent with the intent of the TSM framework and that a management system is in place and fully implemented. Both operations achieved a Level AAA and demonstrated continual improvement in total recordable injury-rate reduction and for being fatality free.

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 assets in care and maintenance in the Dominican Republic and Australia. 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 143,000 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.

Both operations had their 2013 TSM performance verified in 2014. The following highlights results since the previous verification report was completed in 2010.

Aboriginal and Community Outreach: The Sudbury Integrated Nickel Operations (INO) made improvements in the areas of stakeholder identification and in effective engagement and dialogue.

In 2013, Sudbury INO received substantially fewer noise and odour complaints from the surrounding community, in large part due to noise mitigation measures introduced in the matte granulation area of Sudbury Smelter. Additionally, the installation of on-site early warning SO² monitoring stations have allowed for the earlier curtailment of production during periods of low air movement (stagnation). The introduction of a noise barrier at the smelter, created by a thick soil core within a wooden frame interwoven on the outside with willow trees (a “living wall”), has also contributed to noise reduction. Sudbury INO has also actively engaged with its stakeholders through annual open houses in Onaping, Skead and Falconbridge and through regular meetings with First Nations and community groups (e.g., Wahnapitae First Nation and Falconbridge Citizens Committee, among others).

Raglan Mine saw overall improvements in Aboriginal and community outreach. The strong results can be partially attributed to Glencore’s new RIDE initiative that was introduced as part of the Tamatumani program. This, along with a new, strategic and aligned approach to community social involvement (“Pijariursiq”), is helping to strengthen relationships with the communities of Nunavik. These initiatives also go above and beyond the requirements of the Raglan Agreement.
Energy Use and GHG Emissions Management: Sudbury INO demonstrated overall improvement in energy use and GHG emissions management and reporting. Energy management plans have been developed and implemented across Sudbury INO since 2010. These plans detail how the sites will monitor and control energy consumption, and identify current or upcoming continual improvement projects. A few of the projects that have reduced energy consumption include the implementation of ventilation on demand at Nickel Rim South and the compressor upgrade at the smelter. These projects, among many others, have helped decrease energy use and GHG emissions year-to-year in 2013, despite increased production at Sudbury INO.

Raglan Mine made significant improvements in energy use and GHG emissions management systems. The facility has reinforced the importance of its energy strategy within its business planning process. Raglan Mine completed several initiatives to reduce energy use, and introduced an innovative research and development project around windmill energy storage that will further help to reduce the facility’s reliance on fossil fuels for power generation.

Tailings Management: Sudbury INO has achieved improvements across all of the tailings management indicators since 2010. Water management is a focus for the Sudbury operations, despite their water-abundant location. Sudbury INO’s superior water treatment technology has led to its water treatment services being brokered to other industrial operators in the region. Since 2010, Sudbury INO has conducted internal and external reviews of its tailings management system to ensure compliance to TSM requirements, and as a means of continual improvement within its ISO 14001 environmental management systems.

The 2013 external verification downgraded Raglan Mine’s initial self-assessment in this area and signalled that tailings management is a key area for improvement in 2014. Specifically, the external verification process resulted in the following:

- A reduced rating from a Level AA to a Level B for the tailings management policy and commitment indicator as there was no evidence that the policy was communicated to COI. The internal audit conducted at the mine did not specifically assess whether Raglan Mine’s tailings management policy and commitment conformed to MAC’s A Guide to the Management of Tailings Facilities.

- A reduced rating from a Level AAA to a Level A for the tailings management system indicator as the internal audit did not specifically assess whether the implementation of the tailings management system conformed to MAC’s tailings management guide.

- A reduced rating from a Level A to a Level C for the annual tailings management review indicator as no periodic formal reviews of the tailings management system was performed.

In 2010, Raglan Mine scored four Level As and one Level B in tailings management. In 2013, the facility’s externally verified results included three Level As, one Level B and one Level C. Areas for improvement include the indicators for tailings management policy and commitment, and annual tailings management review.

Safety and Health: Sudbury INO showed overall improvements in health and safety. The operations saw the total recordable injury rate drop by almost 60%, with no lost time injuries for 2013. Sudbury INO’s focus on safety performance incorporates a safety leadership and coaching program, and the implementation of core hazard management plans. Sudbury INO has further developed and implemented its safety management system to provide its employees and contractors with the tools and skills to achieve zero harm.

Raglan Mine made improvements across all of the safety and health indicators. In 2013, Raglan Mine achieved a more than 40% reduction in its total recordable injury frequency rate. A key factor in this improvement is Raglan Mine’s safety leadership program that provides ongoing coaching sessions and incident/injury analysis to target and prevent specific incidents or accidents, such as hand and eye injuries. The facility’s efforts to assess and
upgrade personal protective equipment have helped to reduce eye and cutting injuries. Raglan Mine conducts fit testing of all employees’ safety glasses and ensures that workers use the right cutting tools and protective gloves for every task.

**Biodiversity Conservation Management:** Sudbury INO achieved improved results for each of the biodiversity conservation management indicators. The verification service provider noted that for indicator 3, biodiversity conservation reporting, the operation’s score decreased from a Level AAA to a Level A because there was no evidence that public reporting on biodiversity conservation had been independently reviewed or verified either internally or externally. This procedure is scheduled to come on line in 2015 in the context of Glencore’s Corporate Practice framework.

Since the 1970s, Sudbury INO has been an active member of the City of Greater Sudbury’s Vegetation Enhancement Technical Advisory Committee. Through this committee, the operation has provided technical support and funding for programs such as the Ugliest Schoolyard Contest. In 2012/2013, Sudbury INO participated in the launch of a biodiversity inventory as part of the city’s regreening initiative, which has reclaimed 4.1 hectares of barren land and planted more than 70,000 tree seedlings and almost 50,000 shrubs or understory trees throughout Greater Sudbury.

For Raglan Mine, results were mixed for biodiversity conservation management with facility-level biodiversity conservation planning and implementation achieving only a Level C rating in 2013 as compared to a Level B in 2011. Multiple biodiversity protection initiatives are still being conducted at the site, and Raglan Mine could structure them as part of a more integrated program in the future.

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

**Biodiversity Conservation Management:** Brunswick Smelter increased from a Level B to a Level A based on communication of commitments, clear roles, responsibility and resources; assessment of risks, targets and action plans; and internal and regular reporting to the Community Advisory Panel. Kidd Operations’ rating decreased from a Level AA to a Level A due to the need for an independent review or verification.

**Safety and Health:** Kidd Operations was externally verified at a Level AAA for indicator 1, policy, commitment and accountability to safety and health. Brunswick Smelter and CEZ Refinery moved from a Level AA to a Level A. An internal audit of the Kidd Operations’ policy is required to maintain a Level AA. CEZ Refinery’s rating increased from a Level AA to a Level AAA for demonstrating a commitment to safety throughout the facility and to management through one-on-one interactions with employees.

**Crisis Management Planning:** The 2013 assessment identified gaps at both the corporate and facility level. In 2014, the company will work to update its crisis program, training and testing to meet MAC requirements and address changes at Glencore.

**FOR MORE INFORMATION, PLEASE VISIT:** WWW.GLENCORE.COM.
MEASURING COMPANY PERFORMANCE

GLENCORE COPPER OPERATIONS

CRISIS MANAGEMENT PLANNING ASSESSMENT

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Externally Verified

ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- 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

GLENCORE COPPER OPERATIONS

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
MEASURING COMPANY PERFORMANCE

GLENCORE NICKEL OPERATIONS

CRISIS MANAGEMENT PLANNING ASSESSMENT

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GLENCORE NICKEL OPERATIONS

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Biodiversity Conservation Management Assessment
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- 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
**MEASURING COMPANY PERFORMANCE**

**GLENCORE ZINC OPERATIONS**

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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

**Brunswick Smelter** and **CEZINC**

- AAA
- AA
- A
- B
- C

**Externally Verified**
### BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- Corporate Biodiversity Conservation Policy, Accountability and Communications
- Facility-Level Biodiversity Conservation Planning and Implementation
- Biodiversity Conservation Reporting

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- Brunswick Smelter
- CEZinc

### 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

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- Brunswick Smelter
- CEZinc
Hudbay Minerals is a Canadian integrated mining company with operations, development properties and exploration activities across the Americas. Hudbay is principally focused on the discovery, production and marketing of base and precious metals. Its current operating facilities are located in Flin Flon and Snow Lake, Manitoba.

In 2013, Hudbay surpassed its goal of maintaining previous TSM results by improving on one indicator in the Aboriginal and community outreach protocol. Hudbay met its goal to maintain other TSM scores, and continued to achieve very good safety results and compliance with the requirements of the tailings management protocol.

Hudbay’s improvements in Aboriginal and community outreach are a direct result of implementing Aboriginal awareness training throughout the organization in Canada. In Manitoba, the company is an established part of the Flin Flon and Snow Lake communities and engages regularly with them. Recent discussions with communities have focused primarily on training and job opportunities for the people of northern Manitoba, as well as on the potential impact of the Reed and Lalor mines on the local environment and communities. Outreach has included engagement with First Nations communities and participation in the newly established Mining Advisory Council, which brings together First Nations leadership, industry representatives and the Manitoba government to ensure First Nations communities benefit from the development of new mines. Two Hudbay representatives will be part of this advisory council.

Hudbay achieved a Level AA or higher for all indicators in the safety and health protocol. Hudbay’s Manitoba operation has implemented strong safety systems, robust training programs and effective communications. The Positive Attitude Safety System, one of the tools used in Manitoba, is now being implemented at Hudbay’s Constancia project in Peru.

The company achieved Level AA for all indicators in the tailings management protocol, which demonstrates that Hudbay’s tailings management system adheres to MAC’s guidance manual on the management of tailings facilities. To achieve a Level AA, Hudbay conducted an internal audit of its tailings management system.

In Manitoba during 2013, the company brought the new Reed mine into operation and made progress toward bringing the new Lalor mine into commercial operation in 2014. Construction continued at the Constancia mine in Peru and operations are scheduled to start in late 2014. Hudbay remains on track to voluntarily apply and publicly report on TSM protocols at the Constancia mine once the project is in full operation.

FOR MORE INFORMATION, PLEASE VISIT: WWW.HUDBAYMINERALS.COM.
**MEASURING COMPANY PERFORMANCE**

**HUDBAY MINERALS INC.**

**CRISIS MANAGEMENT PLANNING ASSESSMENT**

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**ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT**

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

![ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT Graph]

**SAFETY AND HEALTH ASSESSMENT**

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

![SAFETY AND HEALTH ASSESSMENT Graph]

*Results externally verified in 2013.*
# Towards Sustainable Mining Progress Report

## Measuring Company Performance

### Tailings Management Assessment

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**Hudson Bay Mining and Smelting Co., Limited**

### Biodiversity Conservation Management Assessment

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**Hudson Bay Mining and Smelting Co., Limited**

### Energy Use and GHG Emissions Management Assessment

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<tr>
<td>Energy and GHG Emissions Performance Targets</td>
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**Hudson Bay Mining and Smelting Co., Limited**
IAMGOLD is a leading mid-tier Canadian gold mining company, with five operating gold mines on three continents (including current joint ventures). In Quebec, the company operates Niobec Inc., one of the world’s top three producers of niobium. 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, which will begin commercial production on July 1, 2014, is located 35 kilometres east of Rouyn-Noranda. Westwood uses some of the former Doyon infrastructure, such as the former open pit for tailings storage. Avoiding the use of undisturbed land for this purpose means Westwood will minimize its environmental footprint. Despite the fact that the site is not yet in operation, IAMGOLD has been including Westwood in its TSM reporting since 2009.

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. As this project advances toward construction and development, IAMGOLD will add it to its TSM reporting.

Zero harm is the vision that guides and drives IAMGOLD. The company is committed to continually striving toward the highest standards in human health and safety, minimizing its impact on the environment and working cooperatively with host communities. Zero harm is both a goal and a journey. It is well understood by the company’s employees in whatever language they operate, and 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 program is a component of zero harm and is, therefore, well embedded in IAMGOLD’s operating practices and pursuit of excellence.

In May 2014, IAMGOLD’s Essakane mine received the 2014 TSM Community Engagement Award for its village market gardening project in Burkina Faso. The award recognizes the project’s innovative approach to community engagement and its long-lasting benefits to local communities by helping combat poverty and improve food security and nutrition. IAMGOLD’s Essakane mine was also a finalist for the 2014 TSM Environmental Excellence Award for its initiative to improve biodiversity through village reforestation in Burkina Faso.
As a MAC member, IAMGOLD upholds its commitment to TSM by continually strengthening the application of TSM protocols. In 2013, the company showed overall improvement from last year’s results, achieving a Level A or higher in tailings management, Aboriginal and community outreach, safety and health, and crisis management for all of its operations.

Performance in energy use and GHG emissions management remains the weakest overall area, and one IAMGOLD remains focused on. In 2013, the company introduced new monitoring and tracking software, which will establish baselines and allow IAMGOLD to set realistic management targets. IAMGOLD also continues to take part in the Carbon Disclosure Project.

FOR MORE INFORMATION, PLEASE VISIT: WWW.IAMGOLD.COM.
MEASURING COMPANY PERFORMANCE

IAMGOLD CORPORATION

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ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

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

ESSAKANE

MOUSKA

NIOBEC

ROSEBEL GOLD MINES N.V.

WESTWOOD PROJECT

*Results externally verified in 2012.*
MEASURING COMPANY PERFORMANCE

IAMGOLD CORPORATION

SAFETY AND HEALTH ASSESSMENT

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

ESSAKANE

MOUSKA

NIOBEC

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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

ESSAKANE

NIOBEC

ROSEBEL GOLD MINES N.V.

WESTWOOD PROJECT
MEASURING COMPANY PERFORMANCE
IAMGOLD CORPORATION

**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 Management Systems
- Energy Use and GHG Reporting Systems
- Energy and GHG Performance Targets

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* Mouska’s total GHG emissions are under 25 kt CO₂e and therefore are not required to report performance for indicator 3 of the energy use and GHG emissions management protocol.

** Westwood’s total GHG emissions are under 25 kt CO₂e and therefore are not required to report performance for indicator 3 of the energy use and GHG emissions management protocol.
COMPANY PROFILE - IMPERIAL METALS CORPORATION

Imperial Metals Corporation is an exploration, mine development and operating company based in Vancouver. Its expertise and focus is on base and precious metals, and its exploration and operations are located primarily in British Columbia.

Imperial Metals’ Mount Polley mine (Mount Polley Mining Corporation) is an open-pit copper and gold mine with a developing underground project. It is located in south-central British Columbia.

In light of the Tailings Storage Facility Breach at the Mount Polley mine in August of 2014, Imperial Metals is reviewing its TSM assessment for tailings management. An update on the Mount Polley breach and on Imperial Metals is included herein and TSM assessment results for the other five protocols are reported below. In addition to the update provided, MAC will provide a further update when the BC Government’s independent review of the Mount Polley incident is completed.

Mount Polley Mine Tailings Storage Facility Breach
Early on August 4, 2014 a breach of the tailings storage facility (TSF) dyke occurred at Imperial’s Mount Polley mine causing water and tailings to be released. Estimated summary of materials displaced by the breach:

- Supernatant water 10.6Mm³
- Tailings Slurry: tailings solids 7.3Mm³; interstitial water 6.5Mm³
- Construction materials 0.6Mm³

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, to work with our mine operating personnel, local agencies, provincial ministry officials and the engineers of record to assess the extent of the breach and the impact of the release of water and tailings into the surrounding area. Monitoring instruments and onsite personnel had no indications of an impending breach. It is important to note the tailings are alkaline (average pH 8.5) and are not acid generating.

Our first priority was and continues to be the health and safety of our employees and neighbours. We are grateful no loss of life or injury, or personal property damage occurred due to this event. We are deeply concerned and are working to mitigate immediate effect and understand the cause of the breach.

**Impact of Breach on Imperial**
Mount Polley mine will remain on care and maintenance for an indeterminate period of time.

At this time, it is too early to estimate the total costs of remediation and reclamation. However, we believe the costs can be managed over time given the underlying value of Imperial’s assets, the commitments for the additional $100 million financing announced on August 14 and insurance proceeds. These resources will provide sufficient liquidity to complete and commission the Red Chris mine.

**Message from Brian Kynoch, President of Imperial Metals**
We thank all our employees and stakeholders who very quickly responded to offer help following the August 4 breach at our Mount Polley mine. We remain focused and positive with the help of our employees and community members. We also appreciate the offers of support from our colleagues in the mining industry and residents of BC and beyond, who understand the complexity of responding, planning and working toward mitigating the effects of this event.

**FOR MORE INFORMATION, PLEASE VISIT: WWW.IMPERIALMETALS.COM.**
# Measuring Company Performance

## Imperial Metals Corporation

### Crisis Management Planning Assessment

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<td>Mount Polley</td>
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### Aboriginal and Community Outreach Assessment

- 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

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MINING.CA/TOWARDS-SUSTAINABLE-MINING 111
MEASURING COMPANY PERFORMANCE

IMPERIAL METALS CORPORATION

**Biodiversity Conservation Management Assessment**

- Corporate Biodiversity Conservation Policy, Accountability and Communications
- Facility-Level Biodiversity Conservation Planning and Implementation
- Biodiversity Conservation Reporting

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**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

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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. As a result, New Gold has adopted standards such as the International Cyanide Management Code and the 10 principles of the United Nations Global Compact. New Gold has also attained ISO 14001 certification for environmental management for two of its four operations, and 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. These standards ensure that TSM principles are applied at all New Gold operations in Canada and abroad.

In its first year of TSM implementation, New Afton enthusiastically adopted TSM protocols, in addition to implementing ISO 14001, as it moved from the project development phase through commissioning and into production in July 2012. Last year was the first full year of operation at New Afton and the first year of mandatory TSM reporting. This is New Afton’s second year of TSM reporting. Although originally not required to report in 2013, New Gold disclosed its results at the facility level. This demonstrates the company’s commitment to transparency and the TSM initiative.

An external verification has been completed by Managed Process Consulting Inc., which assessed the reported TSM performance results as measured against the TSM indicators. The scope of the external verification included the company’s TSM verification processes for tailings management, energy use and GHG emissions management, biodiversity conservation management, Aboriginal and community outreach, safety and health, and crisis management planning. The external verification was conducted in accordance with generally accepted standards consisting primarily of interviews, data analysis and examination of other evidence relevant to management’s assertion of conformance to the requirements of the TSM performance indicators.
The results achieved in 2013 demonstrated continual improvement from the previous year’s results. Notably, New Afton has achieved significant success in the Aboriginal and community outreach and energy use and GHG emissions management protocols.

Regarding Aboriginal and community outreach, New Afton has successfully developed a Partnership Agreement with the Skeetchestn Indian Band and the Tk’emlúps te Secwepémc, and has won several awards, such as the Mining Association of British Columbia’s 2011 Mining and Sustainability Award, the 2012 Corporate Champion for Aboriginal Business Award, and the 2013 BC Mining HR Diversity Award. In 2013, New Afton met its targets and reached Level AA or Level AAA in all of the Aboriginal and community outreach performance indicators.

Regarding energy use and GHG emissions management, New Afton achieved Level AAA in management systems, Level AA in reporting systems and Level B in performance targets. The company expects its score to increase for performance targets as its management system matures and as the appropriate baseline data is collected. In 2013, New Afton made significant progress towards a vision of sustainable energy management and, in early 2014, it was 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.

NEW GOLD’S NEW AFTON MINE
NEAR KAMLOOPS, BRITISH COLUMBIA.
MEASURING COMPANY PERFORMANCE
NEW GOLD INC.

CRISIS MANAGEMENT PLANNING ASSESSMENT

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- COI RESPONSE MECHANISM
- REPORTING

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- PLANNING, IMPLEMENTATION AND OPERATION
- TRAINING, BEHAVIOUR AND CULTURE
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MEASURING COMPANY PERFORMANCE

NEW GOLD INC.

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- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
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- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS
COMPANY PROFILE - NYRSTAR

Nyrstar is an integrated mining and metals business, with market leading positions in zinc and lead, and with growing positions in other base and precious metals. Nyrstar’s worldwide mining and smelting operations include two mines located in Canada: Myra Falls in British Columbia and Langlois in 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. The TSM performance protocols help Nyrstar’s Canadian sites to address key safety, health and environmental risks and processes responding to the 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 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. The Langlois mine will begin publicly reporting TSM performance in 2015.

TSM protocols have helped Myra Falls to prioritize environmental initiatives and enhance the operation’s commitment to environmental performance. The assessment results for 2013 were not significantly different from those of 2012, but they did demonstrate improvements, particularly in the area of tailings management. A summary of assessed performance in relation to each of the TSM protocols is provided below.

Energy use and GHG emissions management was generally strong. This reflects Myra Falls’ long-term focus on energy management, and the importance of a reliable and cost-efficient energy supply for the mine. In a typical year, approximately 95% of the operations’ energy needs are met through low-carbon power supplied from the mine’s two hydro facilities.
The assessment of crisis management revealed several deficiencies, both at the site and corporate levels. An action plan to strengthen processes and capabilities for crisis management is being implemented and will help to refocus attention on this important subject matter.

Tailings management has been a key focus for Myra Falls for many years, and the facility has well-established processes for the operation, maintenance and surveillance of its tailing storage facilities. TSM scores related to tailings management accountabilities and management review improved in 2013.

Biodiversity conversation management is critically important to the operations and involves a large number of activities and initiatives. This performance element will benefit from the structure and organization provided by a more comprehensive environmental management system (EMS). The advancement of Myra Falls’ EMS is expected to result in improved TSM scores.

Processes for Aboriginal and community outreach have seen significant development since Myra Falls joined Nyrstar, and the company’s 2013 TSM scores demonstrated stable performance relative to the year prior. A range of community engagement activities was completed in 2013, including a major consultation process associated with the development of a new site-wide closure plan.

In the area of safety and health, Myra Falls had another strong year in 2013, consolidating the significant performance improvements achieved in 2012.

Based on its ramp-up schedule, Langlois conducted its first internal TSM self-assessment in 2013. The results revealed several areas requiring attention and improvement, but also validated the efforts made to improve performance, in particular in regards to safety and health. The results of the initial self-assessment will help direct action and prioritize Langlois’ safety, health, environmental and community improvement activities going forward.

Nyrstar expects that TSM scores for all applicable protocols will improve as the SHEC Management Framework is implemented across the company’s operations.

FOR MORE INFORMATION, PLEASE VISIT: WWW.NYRSTAR.COM.
MEASURING COMPANY PERFORMANCE

NYRSTAR

CRISIS MANAGEMENT PLANNING ASSESSMENT

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ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- 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

NYRSTAR MYRA FALLS

*Results externally verified in 2013.*
**MEASURING COMPANY PERFORMANCE**  NYRSTAR

### TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
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### ENERGY USE AND GHG EMISSIONS MANAGEMENT ASSESSMENT

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

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**NYRSTAR MYRA FALLS**
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 Canada, with significant businesses in Asia, Europe, Africa and South America.

In Canada, Rio Tinto operates 35 sites across seven jurisdictions and employs over 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 currently reporting on TSM include the following:

- **The Iron Ore Company of Canada (IOC)** is a joint venture of Rio Tinto Mitsubishi and the Labrador Iron Ore Royalty Corporation. Managed by the Rio Tinto Iron Ore group, IOC is Canada’s largest iron ore pellet producer. IOC maintains an open-pit mine, a concentrator and an iron ore pellet-making plant in Labrador City, Newfoundland and Labrador. The company operates a 418-kilometre railway from the Labrador City plant to private port facilities in Sept-Îles, Quebec. In 2013, IOC continued its award-winning work to rehabilitate its tailings, creating wetland habitats for various species, and focused on initiatives to create environmental awareness within the community. In 2014, IOC was selected as a finalist for a TSM Community Engagement Award and continues to engage with community partners who share a common vision for creating sustainable communities.

- **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 communities. In 2013, Diavik employed 997 people of whom 485 were northerners and 236 were Aboriginal. Diavik has a good record of maintaining a strong relationship with the community.

**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, and hopes to continue for many more. IOC’s office in St. John’s is focused on maintaining mutually beneficial relationships with communities and provincial stakeholder groups, particularly with those in the Newfoundland and Labrador government.
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. Both Sept-Îles and Labrador City continue to report strong performance in the area of Aboriginal and community outreach, achieving a Level AA and AAA across all indicators for this protocol.

The Diavik Diamond Mine sees itself as a guest in a land where Aboriginal people assert a centuries-old presence. In planning the mine, Diavik consulted extensively with local communities about its operation and effects. Diavik is committed to providing significant training, employment and business opportunities to residents in communities of the Northwest Territories and the West Kitikmeot region of Nunavut, ensuring that it leaves a legacy of economically and socially stable local communities in the region. 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 TSM protocol.

Diavik’s management system meets all the criteria for indicator 2 and 3 of this protocol; however, this year’s assessment identified a gap for the first indicator, crisis preparedness. Diavik has since addressed this gap.

**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 is now reporting consistent Level AA performance in this area for its IOC operations. In 2010, IOC adopted the guiding principles for tailings management, which helped strengthen the company’s commitment to tailings management and encourage continuous improvements. Diavik has also maintained strong performance for tailings management over the years.

**Energy Use and GHG Emissions Management**
Rio Tinto has maintained high levels of performance for its energy use and GHG emissions management practices. Since 2009, Labrador City, Sept-Îles and Diavik have achieved a Level AA or AAA for all indicators in this protocol.

The company is always looking for innovative opportunities to reduce its carbon footprint. For example, Diavik’s new wind farm in the Northwest Territories is the first large-scale wind farm and the world’s most northern large-scale wind power operation. This $31 million project is also Rio Tinto’s first wind generation facility, which began delivering power to the mine’s grid on September 28, 2012.

In 2013, the wind farm reduced Diavik’s diesel fuel consumption by 3.8 million litres and provided, on average, 8.5% of the mine’s power needs. Peak power penetration levels achieved were over 50%—representing enough energy to power the underground mine.

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, and 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.
**COMPANY PROFILE**  RIO TINTO

**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.

FOR MORE INFORMATION, PLEASE VISIT THE RIO TINTO WEBSITE: WWW.RIOTINTO.COM.

**IRON ORE COMPANY OF CANADA TRANSPORTS ORE BY TRAIN FROM THE LABRADOR CITY PLANT TO PRIVATE PORT FACILITIES IN SEPT-ÎLES, QUEBEC.**
MEASURING COMPANY PERFORMANCE

DIAVIK DIAMOND MINE

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DIAVIK DIAMOND MINE
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- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS
## Measuring Company Performance

### Iron Ore Company of Canada

#### Crisis Management Planning Assessment

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#### Aboriginal and Community Outreach Assessment

- Community of Interest (COI) Identification
- Effective COI Engagement and Dialogue
- COI Response Mechanism
- Reporting

![Bar chart comparing Labrador City and Sept-Îles]

#### Safety and Health Assessment

- Policy, Commitment and Accountability
- Monitoring and Reporting
- Planning, Implementation and Operation
- Performance
- Training, Behaviour and Culture

![Bar chart comparing Labrador City and Sept-Îles]
MEASURING COMPANY PERFORMANCE

IRON ORE COMPANY OF CANADA

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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 (2%).

Shell’s commitment to sustainability is embedded in the company’s general business principles. Meeting this commitment requires:

- Balancing short- and long-term interests
- Integrating economic, environmental and social considerations into business decisions
- Regularly engaging with the company’s many stakeholders

In practice, Shell aims to reduce impacts and deliver benefits through its portfolio and products, and through the way it operates. Shell is committed to building projects, running facilities and managing supply chains safely. Shell is also committed to operating in ways that reduce negative environmental and social impacts and create positive benefits for the communities where it operates.

**Economic Sustainability**

It is one of Shell’s integral values to invest in the general well-being of the communities that grant its licence to operate. The company endeavours to create lasting social benefits by employing local people and using local contractors and suppliers.

In the summer of 2012, the AOSP produced its 500-millionth barrel of bitumen. This is a tremendous achievement for Shell’s oil sands business and is the result of almost 10 years of hard work and innovation by thousands of employees and contractors.

The company’s offices in Fort McKay and Fort McMurray, and its liaison for Fort Chipewyan, allow Shell to keep in contact with the community and to engage with stakeholders on an ongoing basis. Most of the 2,500 employees at Shell Albian Sands live in the Regional Municipality of Wood Buffalo.

Shell builds and maintains strong relationships with Aboriginal businesses within areas that surround its operations. At the end of 2012, the company had invested more than $1.25 billion with Aboriginal businesses as
part of the AOSP since 2005. All of these business relationships are based on the same criteria and standards as the company’s business relationships with non-Aboriginal partners.

In November 2011, Shell announced a fly in/fly out program for Fort Chipewyan, making it possible for current and future employees and their families to continue living in their community, while participating in the economic growth on their traditional land.

Environmental Sustainability
Shell takes a “best in class” approach to environmental management. In 2004, the Muskeg River mine was certified to the ISO 14001:1996 standard. This achievement made the mine 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 ISO 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.

Ongoing, meaningful involvement with multi-stakeholder groups is an important part of Shell’s environmental management strategy. Shell is an active member of:

- The Oil Sands Developers Group
- The Cumulative Environmental Management Association
- The Wood Buffalo Environment Association
- The Regional Aquatics Monitoring Program
- The Canadian Association of Petroleum Producers
- Canada’s Oil Sands Innovation Alliance
- The Integrated CO\textsubscript{2} Network

Tailings are one of the oil sands industry’s most critical issues. To respond to this issue, the seven oil sands mining companies created Canada’s Oil Sands Innovation Alliance (COSIA). Shell was central to the formation of the consortium and to a landmark agreement among its members. Oil sands mining companies have agreed to remove all monetary and intellectual property barriers and to collaborate on future tailings research and solutions to accelerate tailings reclamation and reduce freshwater usages.

Fossil fuels provide about 80% of the world’s daily energy needs, but are also among the most carbon-intensive. Shell takes a proactive and innovative stance on CO\textsubscript{2} emissions management. For example, Quest, Shell’s Carbon Capture and Storage (CCS) Project, is the world’s first oil sands CCS project and is a flagship initiative on a global scale for Royal Dutch Shell.

Social Sustainability
In March 2012, Shell and its joint-venture owners, Chevron and Marathon, announced a $1 million contribution to Father Patrick Mercredi Community High School Science and Technology Centre in Fort McMurray.
“We needed to do something for our high school students to better engage them,” said Kim Jenkins, Superintendent of Schools for Fort McMurray Catholic School District. “Thanks to supporters and industry partners like Shell Canada, Father Mercredi was equipped with labs, tools and equipment necessary to properly instruct these students as they work towards their certificate.”

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.

**TSM Annual Facility Review**

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, including consulting within the communities and hosting community members at the facility. Shell informs communities about its environmental performance through an annual Oil Sands Performance Report.

Shell’s tailings management initiatives continued in 2013, with the company focusing on extending its understanding of pilot scale technologies to determine if they can be operated on a commercial scale. Over the last 10 years, Shell has spent more than $200 million on tailings technology and research. Key technologies it is currently working on include beaching, atmospheric fines drying and thickened tailings.

GHG emissions management and reporting is getting better as Shell adopts more automatic systems to improve its data reporting in order to meet regulatory requirements. Energy management programs continue to be embedded within the company and are captured in its EMS. Shell implemented several projects in 2013 to reduce energy use within the operation. Shell continues to focus on safety, people, environment and social performance as it helps develop Canada’s oil sands resources.

**FOR MORE INFORMATION, PLEASE VISIT: WWW.SHELL.CA.**
**MEASURING COMPANY PERFORMANCE**  

**SHELL CANADA ENERGY**

### CRISIS MANAGEMENT PLANNING ASSESSMENT

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### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

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

AAA | AAA | AA | A | B | C | SHELL ALBIAN SANDS

### SAFETY AND HEALTH ASSESSMENT

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

AAA | AAA | AA | A | B | C | SHELL ALBIAN SANDS

*Results externally verified in 2013.*
**MEASURING COMPANY PERFORMANCE**

**SHELL CANADA ENERGY**

### TAILINGS MANAGEMENT ASSESSMENT

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
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![Tailings Management Assessment Chart]

**SHELL ALBIAN SANDS**

### BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
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![Biodiversity Conservation Management Assessment Chart]

**SHELL ALBIAN SANDS**

### 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

![Energy Use and GHG Emissions Management Assessment Chart]

**SHELL ALBIAN SANDS**
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.

In 2009, Suncor merged with Petro-Canada to become Canada’s largest energy company. The merger will result in a second oil sands mining operation for Suncor in the region in the coming years.

Suncor’s 2013 TSM results were internally verified. For the most part, they were consistent with the company’s externally verified results from 2011.

Crisis Management Planning
In 2013, Suncor completed all requirements for this protocol and received a “yes” score for all.

Energy Use and GHG Emissions Management
Suncor did not meet the requirements for reporting for indicator 2, energy and GHG emissions reporting systems, and received a Level B rating. As energy and performance targets were not met in 2013, Suncor received a Level B for indicator 3, energy and GHG emissions performance targets.

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. As in 2012, Suncor achieved a Level A 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. Suncor regularly reviews its communities of interest (including several Aboriginal communities) and its interaction with them. Communities of interest have an important say in how the company conducts business. Moreover, Suncor’s success depends on earning the trust and consent 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.
COMPANY PROFILE  SUNCOR ENERGY

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. As Suncor’s safety and health program has not been benchmarked against peers, it scored a Level A for indicator 5, performance.

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.
**Measuring Company Performance**

**Suncor Energy**

**Crisis Management Planning Assessment**

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**Aboriginal and Community Outreach Assessment**

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**Safety and Health Assessment**

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*Results externally verified in 2012.*
**MEASURING COMPANY PERFORMANCE**

**SUNCOR 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
Syncrude is a leader in Canada’s oil sands industry, with production capacity equivalent to 15% of the nation’s crude oil requirements. It operates technologically advanced oil sands mines, extraction and upgrading facilities, and utilities plants at its two sites north of Fort McMurray, Alberta. Syncrude’s current production capacity is 350,000 barrels of crude oil per day.

Syncrude’s commitment to superior environment, health and safety performance and excellence in community relations has been strengthened by participating in the TSM initiative. In 2013, overall performance remained consistent from previous years except in two areas. First, neither energy nor greenhouse gas emissions targets were met. Second, a contractor fatality occurred.

**Highlights for 2013 include:**

- Syncrude earned a Level A rating in all areas of tailings management. Syncrude’s focus includes regular updates to its OMS manuals for all Syncrude tailings facilities. The company conducts regular monitoring of all dams on its site, commissions external technical reviews and has emergency plans in place to respond to any incidents involving these facilities. The Vice President of Mine Production and Vice President of Technical signed a letter of management commitment to ensure that Syncrude’s high level of performance continues in this area.

- Although Syncrude’s energy and GHG management and reporting systems are excellent, the company did not meet its intensity targets for 2013. This was the result of lower than anticipated production levels, which affected Syncrude’s overall performance.

- Syncrude achieved Level AAA ratings for Aboriginal and community outreach. Syncrude has been reaccredited at Gold Level status in the Progressive Aboriginal Relations program of the Canadian Council for Aboriginal Business for the fifth consecutive time. A management-level group oversees the strategic plan of Syncrude’s Aboriginal engagement, and input from communities of interest has been sought to drive future performance.

- Syncrude 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.
COMPANY PROFILE
SYNCRUDE CANADA LTD.

• Syncrude scored “yes” in all areas of crisis management planning for TSM. 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.

• Syncrude achieved Level AAA ratings for biodiversity conservation management. The company demonstrated continuous improvements in the evaluation and reporting programs, as well as in the avoidance or mitigation of significant adverse biodiversity effects. Syncrude has also improved communications about its efforts to reclaim disturbed land. The Vice President of Production has signed a letter affirming Syncrude’s commitment to biodiversity conservation.

• Syncrude earned Level AAA ratings in four out of five safety categories, demonstrating its commitment to protecting and promoting the safety and well-being of employees, contractors, communities and the environment.

FOR MORE INFORMATION, PLEASE VISIT: WWW.SYNCRUDE.CA.
MEASURING COMPANY PERFORMANCE  
SYNCRUDE CANADA LTD.

CRISIS MANAGEMENT PLANNING ASSESSMENT

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ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- 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

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

SYNCRUDE CANADA LTD.

BIODIVERSITY CONSERVATION MANAGEMENT ASSESSMENT

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

SYNCRUDE CANADA LTD.

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

SYNCRUDE CANADA LTD.
Taseko is a Canadian mining company focused on the operation and development of mines in British Columbia. Headquartered in Vancouver, Taseko is the owner (75%) and operator of the Gibraltar mine, the second largest copper mine in Canada. Taseko’s New Prosperity project is one of the largest undeveloped gold-copper deposits in the world. Additionally, the Aley niobium and Harmony gold projects are two longer-term development opportunities that provide Taseko with a diverse project 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 environmental practice, health and safety, and Aboriginal relations. Additionally, the Gibraltar mine has committed to meeting the requirements of MAC’s tailings guides and has an environmental management system (EMS) in place at the facility.

In 2012, Taseko self-assessed its TSM performance for its first year as a MAC member, results of which were aggregated with other mines across Canada. In 2013, Taseko achieved a Level A in 16 of the 23 TSM indicators, with the remaining being assessed at a Level B. Plans to achieve the next level or better are being implemented.

**Crisis Management** systems met all requirements of the TSM protocol at the corporate office. The Gibraltar mine has updated its emergency response plans to ensure they are responsive to risks and reflect best practices. A mock test of the site’s crisis plan, which will include the corporate office and local emergency providers near the Gibraltar mine, will be scheduled in 2014 to meet the requirements for facility-level improvement in training.

**Energy Use and GHG Emissions Management** performance proved to be excellent in 2013 with new efficiencies realized through the modernization of milling and crushing equipment commissioned for the $325 million Gibraltar Development Plan 3 (GDP3) project. With these upgrades, Gibraltar mine saved 21.6 gigawatt hours during 2013. An energy policy, as well as management systems and guiding principles are in place at the mine to continue to reduce energy use and GHG emissions, including reduction of diesel use through fleet idling guidelines. In 2013, the Gibraltar mine achieved Level A ratings for two of the indicators. However, for the third indicator, the facility achieved three of the four aggressive performance targets, resulting in a Level B. A full-time energy coordinator has been assisting with this TSM protocol, and the mine is on a path to continue to improve and meet targets in future years. Taseko remains committed to responsible energy management and continues to explore opportunities for improved performance in this area. The 2013 statistics on energy use and GHG emissions are publicly available on the Taseko website.
COMPANY PROFILE
TASEKO MINES LIMITED

**Responsible Tailings Management** is a key priority for the Gibraltar mine and, in 2013, it achieved Level A for three indicators within this protocol and Level B for the remaining two indicators. One indicator will be increased to a Level A in 2014 through planned meetings with communities of interest (COI) to discuss the tailings policy and the company’s commitment to safe and environmentally responsible tailings operations. The remaining Level B will also be raised to a Level A in 2014 after full implementation of the Gibraltar EMS. This will incorporate tailings management and discussions with COI on the fully implemented tailings management system.

**Aboriginal and Community Outreach** was markedly improved in 2013 with the assessed marks at a Level A across all four indicators. An innovative StakeTracker™ system, implemented in 2013, has helped facilitate COI identification and record-keeping for all public communications and complaints. Taseko used the system to record consultation (follow-up) that occurred with communities during the year. 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.

**Biological Diversity** is a key component of activity at the Gibraltar mine and, in 2013, the facility was assessed at Level A for two indicators and Level B for one indicator. Taseko’s corporate biological diversity policy and Gibraltar’s biological diversity conservation plan captures existing and ongoing programs implemented at the mine, as well as new initiatives supporting conservation. To rise to a Level A or better in 2014, Taseko will discuss the approved Gibraltar plan with COI, along with possible partnerships.

**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. All injuries and occupational illnesses are preventable, which is why we believe there is no job which is so urgent that we cannot take the time to do it safely. Investing in our employees, and specifically their training, gives each individual the confidence to be a leader in looking out not only for their own safety but the safety of their coworkers. Taseko is committed to operational practices that result in improved efficiencies, safety performance and occupational health. The assessed marks for this protocol are at a Level A across all five indicators. The Taseko Health and Safety Policy and 2013 lost time statistics are publicly available on the Taseko website.

FOR MORE INFORMATION, PLEASE VISIT: WWW.TASEKOMINES.COM.
MEASURING COMPANY PERFORMANCE

**TASEKO MINES LIMITED**

### CRISIS MANAGEMENT PLANNING ASSESSMENT

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### ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

- Community of Interest (COI) Identification
- Effective COI Engagement and Dialogue
- COI Response Mechanism
- Reporting

#### Gibraltar

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*Results not externally verified.*
### Tailings Management Assessment

- **Tailings Management Policy and Commitment**
- **Tailings Management System**
- **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**
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, including smelting and refining, safety, environmental protection, materials stewardship, recycling and research.

**TSM Results**

All of Teck’s operations participate in TSM, and Teck’s 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 2013, two of Teck’s steelmaking coal operations and its smelter operations in Trail underwent third-party verification. Teck is pleased to report that the verification confirmed continued improvements, and that both Cardinal River operations near Hinton, Alberta, and Trail operations, in Trail, British Columbia, qualified for TSM Leadership Awards. In November 2013, Teck’s Elkview operation also received a Leadership Award and was the third facility to do so in the 10-year history of the TSM program.

Teck’s overall results for 2013 were strong, and the company achieved high levels of performance across all six protocols. All nine of Teck’s Canadian operations achieved a Level AAA for all indicators in the Aboriginal and community outreach protocol. One example of Teck’s commitment to meaningful community engagement is the collaboration between its Cardinal River operations and recreational trail users around Hinton. Following a successful pilot with the Hinton Fish and Game Association to improve the Mary Gregg Trail, Cardinal River is now partnering with other groups to work on maintenance and design of other designated access trails in the area.

Teck’s Canadian operations also achieved a Level A or higher in all of the energy use and GHG emissions management indicators. To reduce emissions and improve fuel efficiency, the company introduced vehicle anti-idling policies at its B.C. and Alberta mining operations, and installed lightweight truck boxes on haul trucks. The anti-idling initiative is saving almost 5 million litres of diesel annually, as well as reducing emissions at sites by the equivalent of an estimated 13,000 tonnes of carbon dioxide per year. The installation of lightweight truck boxes has resulted in diesel efficiency improvements equivalent to 1.2 million litres per year.
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.
**Towards Sustainable Mining Progress Report 2014**

**Measuring Company Performance**

### Crisis Management Planning Assessment

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Externally Verified

### Aboriginal and Community Outreach Assessment

- **Community of Interest (COI) Identification**
- **Effective COI Engagement and Dialogue**
- **COI Response Mechanism**
- **Reporting**

MEASURING COMPANY PERFORMANCE

ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT (CONTINUED)

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

COMMUNITY OF INTEREST (COI) IDENTIFICATION

EFFECTIVE COI ENGAGEMENT AND DIALOGUE

COI RESPONSE MECHANISM

REPORTING

GREENHILLS OPERATIONS
LINE CREEK OPERATIONS
TRAIL SMELTER

SAFETY AND HEALTH ASSESSMENT

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

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

DUCK POND OPERATIONS
HIGHLAND VALLEY COPPER
CARDINAL RIVER OPERATIONS

COAL MOUNTAIN OPERATIONS
ELKVIEW OPERATIONS
FORDING RIVER OPERATIONS
SAFETY AND HEALTH ASSESSMENT (CONTINUED)

- 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

**Teck Resources Limited**

### Biodiversity Conservation Management Assessment

- Corporate Biodiversity Conservation Policy, Accountability and Communications
- Facility-level Biodiversity Conservation Planning and Implementation
- Biodiversity Conservation Reporting

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**N.B.** The assessment results are based on the company’s sustainability performance as of the reporting period.
MEASURING COMPANY PERFORMANCE

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

Duck Pond Operations
- Energy Use and GHG Emissions Management Systems: AA
- Energy Use and GHG Emissions Reporting Systems: B
- Energy and GHG Emissions Performance Targets: C

Highland Valley Copper
- Energy Use and GHG Emissions Management Systems: AAA
- Energy Use and GHG Emissions Reporting Systems: AA
- Energy and GHG Emissions Performance Targets: A

Cardinal River Operations
- Energy Use and GHG Emissions Management Systems: AAA
- Energy Use and GHG Emissions Reporting Systems: AA
- Energy and GHG Emissions Performance Targets: A

Coal Mountain Operations
- Energy Use and GHG Emissions Management Systems: AAA
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- Energy and GHG Emissions Performance Targets: A

Elkview Operations
- Energy Use and GHG Emissions Management Systems: AAA
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- Energy and GHG Emissions Performance Targets: A

Fording River Operations
- Energy Use and GHG Emissions Management Systems: AAA
- Energy Use and GHG Emissions Reporting Systems: AA
- Energy and GHG Emissions Performance Targets: A

Greenhills Operations
- Energy Use and GHG Emissions Management Systems: AAA
- Energy Use and GHG Emissions Reporting Systems: AA
- Energy and GHG Emissions Performance Targets: A

Line Creek Operations
- Energy Use and GHG Emissions Management Systems: AAA
- Energy Use and GHG Emissions Reporting Systems: AA
- Energy and GHG Emissions Performance Targets: A

Trail Smelter
- Energy Use and GHG Emissions Management Systems: AAA
- Energy Use and GHG Emissions Reporting Systems: AA
- Energy and GHG Emissions Performance Targets: A
COMPANY PROFILE - VALE

Vale, the world’s largest producer of iron ore and second-largest producer of nickel, operates its base metals business from Toronto. 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 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 while ramping up a new, state-of-the-art processing facility in Long Harbour. Vale directly employs approximately 6,000 people in Canada and several thousand contractors.

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 with 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 requirements 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. A few examples from some of Vale’s facilities are highlighted below.

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 of the City of Thompson and region. The plans include a proposed alternative 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 a finalist for the 2014 TSM Community Engagement Award.
COMPANY PROFILE
VALE

In Port Colborne, Vale partnered with a group called Port Cares (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. In 2013, the company and the city 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 negotiations 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 barbeques hosted by Vale in each Aboriginal community; a toll-free information line and website to notify communities of Vale’s marine transportation activities; and a community concerns line. In 2013, the company announced its intention to proceed with the development of an underground mine at Voisey’s Bay. This has resulted in more dialogue with Aboriginal governments on training, employment and business opportunities that will flow from the underground development.

Vale is undertaking a significant construction program in Long Harbour, building a nickel processing plant and port facility. The project is situated 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. While construction at Long Harbour is ongoing, Vale began to assemble its operations team in 2013. Vale introduced a novel recruitment program for Long Harbour and by year-end had in excess of 350 people hired. 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 and production is likely to begin in 2014.

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.

Tailings Management
Vale has maintained performance across the TSM tailings management protocols, averaging a Level A or higher. The company has reviewed all tailings management policies with its COI. In Sudbury, the Central Tailings Area (CTA) operation continued with its well-established, third-party expert Tailings Review Board panel. Vale’s capital projects group completed construction to upgrade one of its oldest tailings dams (circa 1929), the Upper Pond North Dam, to current standards. Vale completed a detailed, week-long facility risk assessment for the CTA, with some recommendations implemented 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, willing to respond to internal emergencies and help the community when possible. All of Vale’s facilities, with the exception of the corporate office, met all the criteria in the crisis management planning protocol in 2013. During 2013, in Thompson, Manitoba, Vale allocated resources to help the city contain a significant fire at the municipal landfill site.
COMPANY PROFILE

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New Protocols for Safety and Health and Biodiversity
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. In Thompson, Manitoba, Vale has reviewed the city’s annual SafeOperations 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.

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 6,700 acres of land.

Biodiversity protection demonstrates how much Vale prizes the planet. In 2012, the company actively supported biodiversity work by partnering with the Manitoba department of conservation’s woodland caribou collaring program, supporting the Vale Inco Living with Lakes Centre, and conducting extensive biodiversity studies in Voisey’s Bay. Vale continues to seek a full understanding of MAC’s new TSM biodiversity conservation management protocol and is committed to sharing best practices across its facilities and developing a holistic plan to improve biodiversity management.

FOR MORE INFORMATION, PLEASE VISIT: WWW.VALE.COM.

WORKERS AT VALE’S VNL OPERATION IN VOISEY’S BAY, NEWFOUNDLAND AND LABRADOR.
MEASURING COMPANY PERFORMANCE

CRISIS MANAGEMENT PLANNING ASSESSMENT

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ABORIGINAL AND COMMUNITY OUTREACH ASSESSMENT

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

*Results externally verified in 2013.
MEASURING COMPANY PERFORMANCE

SAFETY AND HEALTH ASSESSMENT

- 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

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 USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS
“IT IS DIFFICULT TO UNDERSTAND HOW A COMPANY OPERATES BY READING CORPORATE SUSTAINABILITY REPORTS ALONE. THE TSM PROGRESS REPORT GIVES COMMUNITIES THE TOOLS TO EVALUATE PERFORMANCE AND PROVIDES WEIGHT IN TERMS OF HOW COMPANIES CAN BE COMPARED.”

BARRIE FORD, WILDLIFE BIOLOGIST, MAKIVIK CORPORATION