

progress report

towards sustainable mining | 2009



towards sustainable mining



The Mining Association
of Canada

L'Association minière
du Canada



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President's Message



MAC's Towards Sustainable Mining initiative is based on the concept of improving our members' performance in the area of corporate social responsibility. Our goal is continuous improvement for our members and for MAC's work on TSM. We

will therefore continue to better TSM so that it remains a leader in corporate social responsibility in Canada.

This was a year of progress for new TSM frameworks. After a year of consultation, the TSM Aboriginal relations framework was tabled with the Community of Interest (COI) Advisory Panel in September 2008. It was then sent to the MAC Board of Directors for final approval in November, along with the mine closure framework. While the development of the draft protocol for the biodiversity conservation management has proven more challenging than originally anticipated, we are making progress in this area.

MAC's plan for 2009 is to develop mechanisms for reporting on the newly approved frameworks. Doing so will add to the four performance elements already in place: tailings management, energy use and greenhouse gas emissions management, external outreach and crisis management planning.

The verification system for TSM was fully implemented in 2007. In 2008 eight companies had their results externally verified, and three companies presented these results to the COI Advisory Panel.

This report takes a detailed look at our members' progress and performance in the past year. It also describes how we have benefited from the invaluable advice of our COI Advisory Panel concerning the design and implementation of TSM.

As always, you will find thorough reporting of the industry's releases to the environment, including information on our efforts to reduce greenhouse gases. Detailed release data are provided in the CD-ROM at the back of this report and on MAC's website (www.mining.ca). Also provided are updates on the industry's key research initiatives, MITHE-SN and MEND, both of which help us better understand how to address the industry's environmental and health impacts.

I would be remiss in not publicly thanking Mr. Pierre Gratton, our former Vice President of Sustainable Development. It was under Pierre's leadership that TSM was developed and implemented. We wish him well in his new role as President and CEO of the Mining Association of BC. I am also pleased to welcome Ms. Julie Gelfand, formerly President of Nature Canada, who takes over Pierre's role. Nature Canada has been a strong partner of the mining industry, working with us during the Whitehorse Mining Initiative and on issues related to new national park establishment. Julie brings a fresh perspective to MAC and to TSM, one that will help us stay strong into the future.

I hope you find this year's report interesting and informative. As always, your comments are important to us. I urge you to contact us directly if you have any questions.

Gordon R. Peeling
PRESIDENT AND CEO

A Letter from the Chair of the TSM Governance Team



TSM continues to lead the way for the resource sector in the area of sustainable development and corporate social responsibility.

According to a study by Five Winds and Strandberg Consulting released in June 2008, MAC's Towards Sustainable Mining initiative has positioned Canada's mining industry as a leader in sustainable development. This study reaffirms that TSM is effective and credible, and that it enables MAC members to demonstrate their commitment to improved sustainable development performance.

The study was based on a set of benchmarks that emerged from a 2007 report prepared for Natural Resources Canada on the role of industry associations in promoting sustainability. The Five Winds/Strandberg study concluded that TSM:

- is credible, comprehensive and relevant
- provides excellent opportunities for networking and shared learning among peer members
- has helped put sustainable development on the radar screen of member companies
- is addressing emerging issues, such as biodiversity
- enables the successful engagement of stakeholders
- enjoys high commitment from the MAC Board of Directors
- leads best practice through implementation of third-party verification

A copy of the study is available on MAC's website (www.mining.ca).

Informed in part by the Five Winds/Strandberg study, members of the TSM Governance Team and the MAC Board held a strategy session at which they identified new TSM work areas for the future, including health and

safety and water. As well, the international application of TSM was identified as a potential program gap.

TSM communications was another issue addressed at the strategy session. TSM was built around a philosophy of improving company performance in order to improve the industry's reputation. It was critical that MAC members "walk the talk" before communicating their results so as to avoid any suspicion of "green-washing." Now, after several years of performance indicator data, MAC believes it may be time for wider communication of TSM results.

Over the past year TSM initiative leaders continued to work on new frameworks and performance indicators for mine closure, Aboriginal relations and biodiversity conservation. In cooperation with MAC's Energy Committee, initiative leaders developed a draft guidance document on energy use and GHG emissions, which will be field-tested and finalized in 2009. As well, MAC member companies will field-test the new protocol for biodiversity conservation in the summer of 2009.

Finally, I wish to thank Pierre Gratton for his outstanding contribution to MAC and the TSM initiative, and to welcome Julie Gelfand. As well, thanks must go to all initiative leaders, members of the Community of Interest Advisory Panel, and the MAC staff and consultants who have helped us put TSM at the forefront of sustainable development and corporate social responsibility.

Doug Horswill
SENIOR VICE PRESIDENT, TECK RESOURCES LIMITED

SECTION 1.0:

What Is Towards Sustainable Mining and How Does It Work?

Towards Sustainable Mining is the Mining Association of Canada's corporate social responsibility initiative. Its goal is to improve the performance of the industry in several key areas. The initiative was born out of a series of high-profile tailings dam failures in the late 1990s and recognition by industry leaders that in order to maintain their social license to operate, they had to improve their performance.

Guiding Principles

Towards Sustainable Mining is based on a set of guiding principles that represent MAC's overall policy statements in areas such as community engagement, health and safety, environmental protection, biodiversity conservation, continuous improvement, human rights, relations with Aboriginal peoples, business ethics and community economic development, among others.

The principles begin with the following statement:

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.¹

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.² 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.

(For the entire set of guiding principles, please see www.mining.ca and enclosed CD-ROM).

The guiding principles are instrumental for developing concrete performance elements and indicators for TSM. Although the performance elements deal with separate aspects of mining activity, they are linked to one another through the guiding principles.

Performance Elements and Indicators

The TSM guiding principles are backed by specific performance elements and management system-based indicators, which companies report against each year in the Towards Sustainable Mining Progress Report. Performance indicators help to show Canadians what the industry's current performance is and how it can be improved.

Currently, TSM performance indicators have been developed to measure the quality and comprehensiveness of management systems for four performance elements: tailings management, energy use and greenhouse gas emissions management, external outreach and crisis management planning.

The development of TSM performance indicators for each of the performance elements is a multi-stage process. The first stage is to develop a framework, which is also a policy statement that sets the parameters for the performance indicators.

Once the framework is in place, a series of management-system-based indicators is agreed upon, and specific performance criteria are developed for each. Once drafted, the indicators and criteria are examined by the Community of Interest Advisory Panel, the TSM Governance Team and finally the MAC Board of Directors.

¹ 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."

² MAC uses the term "communities of interest" to include all individuals and groups who have, or believe they have, an interest in the management of decisions about MAC operations that may affect them. They include employees, contractors, Aboriginal or indigenous peoples, mining community members, suppliers, customers, environmental organizations, governments, the financial community and shareholders.

Each indicator is designed to focus on a different management component of the performance element. For example, the indicators for tailings management are as follows:

- 1. Tailings management policy and commitment
- 2. Tailings management system
- 3. Assigned accountability and responsibility for tailings management
- 4. Annual tailings management review
- 5. Operation, maintenance and surveillance (OMS) manual

The criteria for each indicator are defined using a five-level performance rating scale. In general, the levels represent the degrees of activity shown in the table "Performance Rating." It is MAC's goal to help all members ultimately achieve a

minimum of Level 3 in all indicators. This is a long-term goal that is still a work in progress.

The indicators for each performance element are described in four protocol documents. These documents provide a framework for evaluating performance against the indicators and set out MAC's general expectations for each performance element in support of the TSM initiative. The protocols are available on the Towards Sustainable Mining section of the MAC website (www.mining.ca) and the enclosed CD-ROM.

Every year MAC members self-assess their TSM performance based on these indicators.

PERFORMANCE RATING	
LEVEL	CRITERIA
1.	No systems in place; activities tend to be reactive; procedures may exist but they are not integrated into policies and management systems.
2.	Procedures exist but are not fully consistent or documented; systems/processes planned and being developed.
3.	Systems/processes are developed and implemented.
4.	Integration into management decisions and business functions.
5.	Excellence and leadership.

EXISTING PERFORMANCE ELEMENTS AND INDICATORS			
TAILINGS MANAGEMENT	ENERGY USE AND GREENHOUSE GAS (GHG) EMISSIONS MANAGEMENT	EXTERNAL OUTREACH	CRISIS MANAGEMENT PLANNING
Tailings management policy and commitment	Energy use management systems	Community of interest (COI) identification	Crisis management preparedness
Tailings management system	Energy use reporting systems	Effective COI engagement and dialogue	Review
Assigned accountability and responsibility for tailings management	Energy intensity performance targets	COI response mechanism	Training
Annual tailings management review	GHG emissions management systems	Reporting	
Operation, maintenance and surveillance (OMS) manual	GHG emissions reporting systems		
	GHG emissions intensity performance targets		



TSM Verification System

MAC is the first mining association in the world to implement external verification of members' performance. The TSM verification system serves an important purpose: it builds confidence in the validity of companies' TSM performance.

The TSM verification system consists of three components:

- verification of company self-assessments by an external verifier
- letter of assurance from a CEO or authorized officer confirming the verified results
- annual post-verification review of two or three member companies' performance by the COI Advisory Panel

Every three years, each MAC member has its TSM results externally verified. External verification takes place on a rotating basis, the goal being to have one-third of members undergo the process each year.

The external verifier (known as a verification service provider, or VSP) uses standard verification methods to assess a company's TSM performance. The process includes reviewing relevant documentation, interviewing company personnel and, when appropriate, site visits or interviews with local communities of interest. The VSP then issues a verification statement and report. As well, the CEO or authorized officer of the member company provides MAC with a letter of assurance confirming that the verification was conducted in accordance with the verification requirements established by MAC. The CEO letters are posted on MAC's website (www.mining.ca). Finally, the

COI Advisory Panel chooses two to three companies for an in-person post-verification review meeting.

Community of Interest Advisory Panel

The Community of Interest (COI) Advisory Panel was established by MAC in 2004. It brings together approximately 20 individuals and representatives from Aboriginal and labour organizations, communities where the industry is active, environmental and social NGOs, and the financial community, along with members of the MAC Board and other mining industry representatives.

The COI Advisory Panel meets twice a year to provide support and advice on the implementation of TSM. Its mandate is as follows:

- to help MAC members and communities of interest improve the industry's performance
- to foster dialogue between the industry and its communities of interest
- to help achieve the goals of TSM

The COI Advisory Panel monitors TSM's progress and serves as an external source of knowledge and experience. As a direct link with civil society, the financial and academic communities and Aboriginal groups, the panel enables open dialogue and engagement with external stakeholders. By bringing together individuals from different backgrounds, the panel functions as an independent mechanism for analyzing the development and implementation of TSM.

SECTION 2.0: A Report on TSM 2008 Results

TSM Performance Results

In all, 17 MAC member companies reported TSM performance results for 2008.

Two member companies—Cameco Corporation and Teck Resources Limited (its coal operations)—conducted TSM self-assessments for the first time. First-time reporters are not required to publicly report facility-level TSM performance results.

Understanding the Results

All member companies with operating facilities in Canada are required to report on the TSM performance indicators. New members have three years to comply with TSM requirements and publicly report and verify their performance.

Facility-level performance against each of the TSM performance indicators for external outreach, tailings management, and energy use and greenhouse gas emissions management is assessed using a five-level performance rating system (described on page 5). More specific criteria are defined under each indicator.

In the case of crisis management planning, companies report at both the corporate and the facility level, answering "yes/no" (met all requirements/did not meet all requirements) for each of the indicators.

It is MAC's goal to help all members ultimately achieve Level 3 performance in all indicators. The graphs that follow show the number of facilities that have achieved Levels 1–5 for each indicator for external outreach, tailings management, and energy use and GHG emissions management. The graphs for crisis management planning show the number of companies and facilities that answered "yes" and "no" for each indicator. The number of verified assessments for each performance element is indicated below the graph.

Detailed facility-level performance results are provided in the Highlights of Company Actions section of this report.

COMPANIES REPORTING TSM PERFORMANCE RESULTS 2008

ArcelorMittal Mines Canada
Barrick Gold Corporation
BHP Billiton Diamonds Inc.*
Diavik Diamond Mines Inc.
HudBay Minerals Inc.
IAMGOLD Corporation*
Inmet Mining Corporation*
Iron Ore Company of Canada
North American Palladium Ltd.
Shell Canada Energy
Suncor Energy Inc.
Syncrude Canada Ltd.
Teck Resources Limited
Vale Inco
Xstrata Copper Canada
Xstrata Nickel
Xstrata Zinc Canada

* indicates externally verified results



TSM INDICATORS

The TSM indicators provide the public with a window on the industry's performance, but by no means do they generate a complete picture. Readers are encouraged to review the environmental, energy use and greenhouse gas data published in this report and on the accompanying CD-ROM, as well as to consult member companies' own reports for more detailed information on performance.



Crisis Management Planning

For crisis management planning, head offices and facilities must meet all criteria for each indicator to answer “yes” to the indicator.

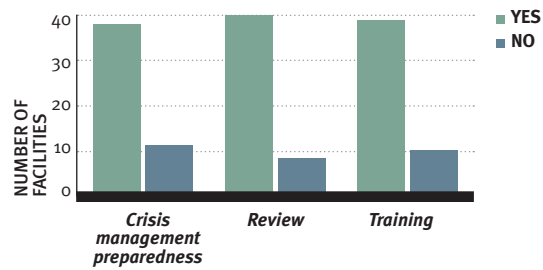
This year over three-quarters of companies and facilities reported that their crisis management plans are developed (*Indicator 1*) and reviewed (*Indicator 2*). Over three-quarters of facilities also reported that their crisis management plans are tested through training (*Indicator 3*). This is a strong improvement over last year's results, when approximately 60 percent of companies and facilities achieved this level of performance.

Corporate-level crisis management training, which requires that “table-top” crisis simulation exercises be conducted annually, is the weakest area of performance.

Five companies answered “yes” for all indicators at both the corporate and facility level: Barrick Gold Corporation, Diavik Diamond Mines Inc., Inmet Mining Corporation, Shell Canada Energy and Syncrude Canada Ltd.*

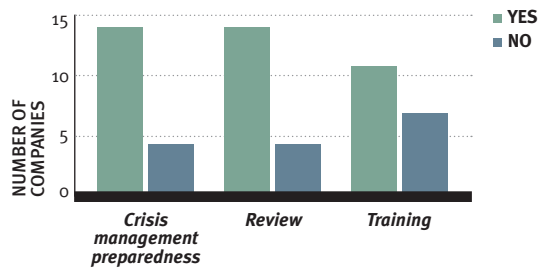
**This site submitted a single assessment for crisis management planning.*

CRISIS MANAGEMENT PLANNING ASSESSMENTS
FACILITY-LEVEL REPORTING



Number of verified facility-level assessments: 16

CRISIS MANAGEMENT PLANNING ASSESSMENTS
CORPORATE-LEVEL REPORTING



Number of verified corporate-level assessments: 3

CRISIS MANAGEMENT PLANNING

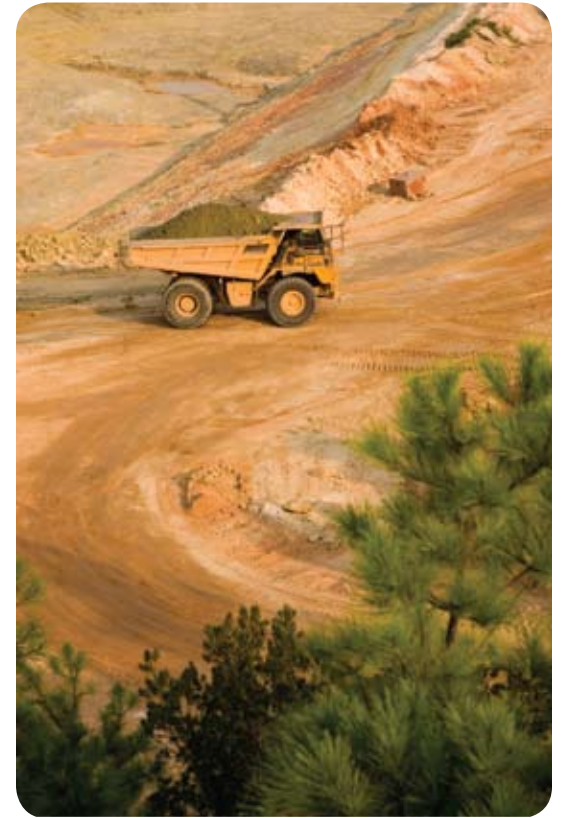
INDICATORS	REQUIREMENT
1. Crisis management preparedness	Member companies must have in place a crisis management plan, which is consistent with the MAC <i>Guidelines for Corporate Crisis Management Planning</i> , March 2007.
2. Review	Member companies will review and update their crisis management plan to ensure it remains responsive to the needs of the company and its operations, properly reflects risks associated with the company's operations and reflects best practice within the industry.
3. Training	Crisis management training, including the use of appropriate crisis simulation exercises, will be conducted annually.

External Outreach

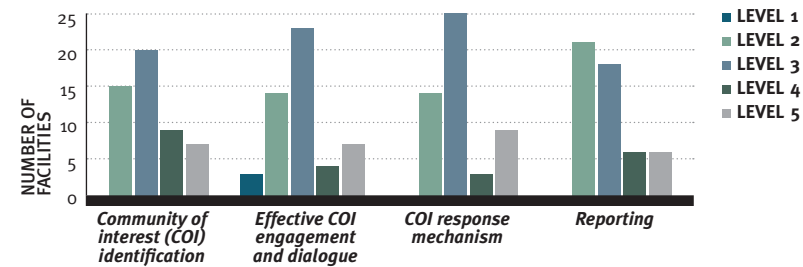
Between 60 and 70 percent of facilities are now at Level 3 or better for each of the external outreach indicators. This strong performance represents a steady improvement over 2007. The greatest improvement has come with *Indicator 1: Community of interest (COI) identification*, with over 70 percent of facilities now scoring Level 3 or better. This means that more facilities have a formal documented system in place for identifying communities of interest at the local and site level.

More than 70 percent of facilities scored Level 3 or better on *Indicator 3: COI response mechanism*. This score confirms that the facilities have processes in place to receive and understand concerns or complaints from COI and to effectively respond to them.

A number of facilities reported excellent results under this performance element. Eight companies achieved Level 4 or better for all four indicators: Diavik Diamond Mines Inc., Inmet Mining Corporation (Ok Tedi), North American Palladium Ltd. (Lac des Iles), Shell Canada Energy (Muskeg River), Suncor Energy Inc., Syncrude Canada Ltd., Teck Resources Limited (Trail) and Vale Inco (Port Colborne, Ontario; VINL Labrador Operations). A further 20 companies achieved Level 3 or better for all four indicators.



EXTERNAL OUTREACH ASSESSMENTS



Number of verified facility-level assessments: 16

EXTERNAL OUTREACH

INDICATORS	PURPOSE
1. Community of Interest (COI) identification	To confirm that efforts have been made to identify COI affected or perceived to be affected by their operations or who have a genuine interest in the performance and activities of a company and/or operation.
2. Effective COI engagement and dialogue	To confirm that processes have been established to communicate with COI to understand their viewpoint, to transparently inform them of company activities and performance, and to actively engage them in dialogue and participation on issues of concern to them.
3. COI response mechanism	To confirm that there are processes to receive complaints and concerns from COI to ensure that they are understood and effectively responded to.
4. Reporting	To confirm that reporting on community engagement and dialogue activities is open and transparent.

Tailings Management

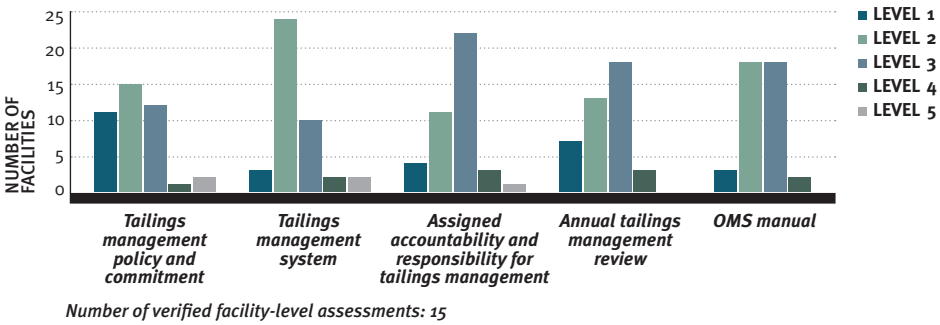
Broadly speaking, performance on tailings management has remained relatively constant since 2007. Performance on *Indicator 1: Tailings management policy and commitment* has rebounded slightly after dipping in 2007, a decrease due in part to clarification of the elements of a tailings management policy and commitment required to meet the Level 3 criteria. Performance on *Indicator 5: OMS manual* has also improved slightly.

The strongest performance is on *Indicator 3: Assigned accountability and responsibility for tailings management*. Over 60 percent of facilities have assigned accountability for tailings management to an executive officer. This demonstrates that accountability for what is typically a mining facility's most significant environmental and safety risk rests with the highest management levels.

Performance on *Indicator 2: Tailings management system* has decreased, with fewer facilities reporting at Levels 3–5. This indicator is the most complex under tailings management. The decrease in performance may reflect the link between *Indicator 1* and *Indicator 2*, whereby a facility must have a tailings management policy in place in order to effectively implement a tailings management system, since the policy provides direction and is part of the management system. Efforts need to be made to ensure that facilities have tailings policies and management systems in place that meet the stringent requirements of MAC's *A Guide to the Management of Tailings Facilities*. MAC will release an updated version of this guide in 2009.

Five companies achieved Level 3 or better across all of the tailings management indicators: Diavik Diamond Mines Inc., HudBay Minerals Inc., IAMGOLD Corporation (Rosebel), Inmet Mining Corporation (for five closed facilities) and Syncrude Canada Ltd.

TAILINGS MANAGEMENT ASSESSMENTS



TAILINGS MANAGEMENT	
INDICATORS	PURPOSE
1. Tailings management policy and commitment	To confirm that companies have established a policy and commitment that expresses intention, commitments and principles in relation to tailings management.
2. Tailings management system	To confirm that companies have a tailings management system in conformance with the tailings management framework in MAC's <i>A Guide to the Management of Tailings Facilities</i> to provide a formal systematic structure for the assessment of risks, setting of goals and objectives, consultation with COI, implementing activities to achieve goals, assignment of responsibilities, and assurance processes to ensure that tailings facilities are managed effectively.
3. Assigned accountability and responsibility for tailings management	Executive accountability for tailings management is necessary to signal the importance of tailings facilities to our business and the adverse impacts improper tailings management practices have on the environment and our reputation. This indicator confirms that companies have an executive officer (CEO or COO) who has overall accountability to ensure that an appropriate management structure is in place to provide assurance to the corporation and its COIs that tailings are managed responsibly. It is expected that the executive officer will delegate responsibility for tailings management, budgetary issues and other tailings-related functions to operations and/or corporate personnel, while retaining ultimate accountability for the management of tailings and its outcomes.
4. Annual tailings management review	To confirm there is an annual corporate review of tailings management that is reported to the accountable executive officer to ensure that the corporation is satisfied that the tailings management structure and systems are effective and continue to meet the needs of the organization.
5. OMS manual	To confirm that the facility has developed and implemented a tailings OMS manual in conformance with <i>Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities</i> .

Energy Use and Greenhouse Gas (GHG) Emissions Management

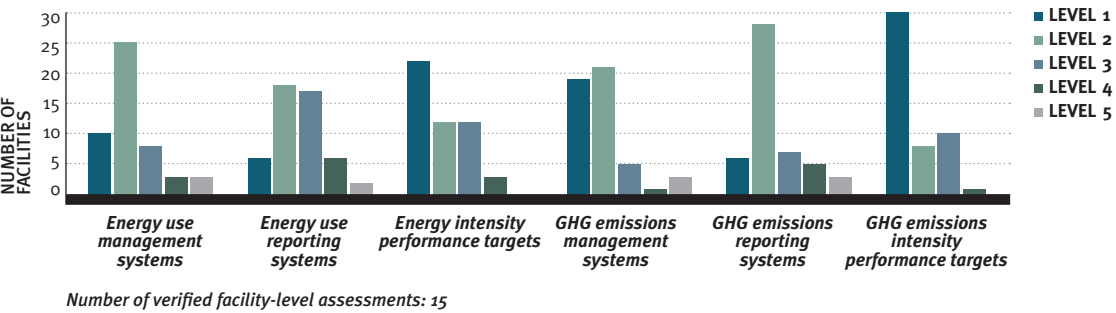
While performance on energy use and GHG emissions management remains the weakest overall area on an aggregate basis, the number of facilities achieving Level 3 or better has improved since 2007 for five of the six indicators (*Indicator 6: GHG emissions intensity performance targets* being the exception). Over half of the facilities have now achieved Level 3 or better for *Indicator 2: Energy use reporting systems*.

To help member companies improve management and performance in this important area, MAC developed its *Energy and GHG Emissions Management Guidance Document* in 2008. A field-test version of this document has been distributed to all members and is available on

MAC's website (www.mining.ca). In early 2009 MAC began to host training workshops for its members to encourage consistent use and application of the document. MAC hopes that these tools will help member companies to improve in this performance element in the future.

Six companies, up from four in 2007, achieved Level 3 or better for all six energy use and GHG emissions management indicators: BHP Billiton Diamonds Inc., Diavik Diamond Mines Inc., HudBay Minerals Inc., Syncrude Canada Ltd., Teck Resources Limited (Trail) and Xstrata Nickel (Raglan mine).

ENERGY USE AND GREENHOUSE GAS (GHG) EMISSIONS MANAGEMENT ASSESSMENTS



ENERGY USE AND GHG EMISSIONS MANAGEMENT	
INDICATORS	PURPOSE
1. Energy use management systems	To confirm that systems are in place to manage energy use.
2. Energy use reporting systems	To confirm that energy use tracking and reporting systems are in place for internal use and for public reporting.
3. Energy intensity performance targets	To confirm that energy intensity performance targets have been established at each facility.
4. GHG emissions management systems	To confirm that systems are in place to manage greenhouse gas emissions.
5. GHG emissions reporting systems	To confirm that greenhouse gas emissions tracking and reporting systems are in place for internal use and for public reporting.
6. GHG emissions intensity performance targets	To confirm that greenhouse gas emissions intensity performance targets have been established at each facility.

External Verification and Post-verification Review

As part of the TSM verification system, each MAC member company must have its TSM performance results externally verified every three years. Three reporters had their 2008 results externally verified: BHP Billiton Diamonds Inc., IAMGOLD Corporation and Inmet Mining Corporation.

The COI Advisory Panel's post-verification review of selected companies' verified TSM performance results is an important part of the TSM verification system. In 2008 the panel chose three companies for a post-verification review of their 2007 results: Barrick Gold Corporation, Xstrata Nickel and Xstrata Zinc Canada. Each company was allotted two hours for the review. Beforehand, the panel provided the companies with questions, to which the companies prepared comprehensive responses in order to focus their dialogue with the panel. A full report on the post-verification review is available on MAC's website (www.mining.ca).

New Performance Elements

Strong progress was made in 2008 on new performance elements being developed by MAC and its members.

The MAC Board of Directors approved the new Aboriginal relations framework in November 2008. Work is currently underway to explore how the framework will be implemented.

A draft biodiversity conservation protocol was developed in 2008–09 to support implementation of MAC's biodiversity conservation framework, which was approved in June 2007. The protocol will be field-tested by MAC members in 2009, followed by a lessons-learned workshop to further refine the protocol. Self-assessment against the protocol is expected to begin in 2010, with results publicly reported in 2011.

The MAC Board also approved a mine closure framework in November 2008. In 2009 MAC will assess the need to develop performance indicators in support of this framework.

In June 2008 the TSM Governance Team held a strategy session at which it determined that MAC should explore how to incorporate water issues into TSM. The Governance Team also decided to look at the international application of TSM and what it means for MAC and its members. Finally, the Governance Team suggested that MAC develop a framework and set of protocols for safety and health. Work on these issues is in the early stages and will be reported on in future TSM progress reports.

The Aboriginal relations framework, the biodiversity conservation framework and the mine closure framework are available on MAC's website (www.mining.ca).



TSM Awards for 2008 Performance

MAC honoured a number of member companies and their facilities for their high levels of TSM performance in 2008 (see table). **A facility's 2008 TSM results must have been externally verified for a facility to be eligible for this recognition.**

To receive a TSM award, an eligible facility must achieve Level 3 or better for all indicators in a performance element (external outreach, tailings management, and energy use and greenhouse gas emissions management). For crisis management planning, head offices and facilities both assess their performance against criteria by answering “yes/no” (met all requirements/did not meet all requirements). Head offices or facilities received awards only if they answered “yes” to all crisis management indicators.

The COI Advisory Panel

In 2008 the COI Advisory Panel met on March 5 and on September 8–9, with conference calls on specific issues between meetings. The panel discussed and advised on a range of issues, including implementation of the TSM verification system and the design of new performance elements for Aboriginal relations and mine closure. As mentioned above, the panel also conducted its second post-verification review of TSM performance results.

A renewal process for the COI Advisory Panel was completed in March 2009. The renewal, which sees members change at the rate of two to three every two years, will provide continuity and stability in the membership while allowing new ideas and interests to come to the table over time. As of March 2009, four panel members had stepped down and five new members had joined. A full list of panel members is provided on page 15.

The COI Advisory Panel has evolved over time to discuss substantive issues that are not directly part of TSM design and implementation but that concern their communities of interest and have, or could have, an impact on the mining industry or its reputation.

The COI Advisory Panel's terms of reference, agendas and minutes are posted on MAC's website (www.mining.ca). In a separate statement in this report, the panel presents its views on the progress of TSM and the challenges facing Canada's mining industry.

TSM 2008 AWARD WINNERS	
CRISIS MANAGEMENT PLANNING	<div>IAMGOLD Corporation:<ul style="list-style-type: none">■ Mupane■ Rosebel Gold Mines N.V.</div> <div>Inmet Mining Corporation:<ul style="list-style-type: none">■ Corporate■ Çayeli Mine■ Cobre Las Cruces■ Copper Range Company (closed)■ Norbec (closed)■ Ok Tedi Mining Ltd.■ Pyhäsalmi Mine■ Samatosum (closed)■ Sturgeon Lake (closed)■ Troilus Mine■ Winston Lake (closed)</div>
EXTERNAL OUTREACH	<div>BHP Billiton Diamonds Inc.:<ul style="list-style-type: none">■ EKATI Diamond Mine</div> <div>IAMGOLD Corporation:<ul style="list-style-type: none">■ Mupane■ Rosebel Gold Mines N.V.</div> <div>Inmet Mining Corporation:<ul style="list-style-type: none">■ Copper Range Company (closed)■ Norbec (closed)■ Ok Tedi Mining Ltd.■ Pyhäsalmi Mine■ Samatosum (closed)■ Sturgeon Lake (closed)■ Troilus Mine■ Winston Lake (closed)</div>
TAILINGS MANAGEMENT	<div>IAMGOLD Corporation:<ul style="list-style-type: none">■ Rosebel Gold Mines N.V.</div> <div>Inmet Mining Corporation:<ul style="list-style-type: none">■ Copper Range Company (closed)■ Norbec (closed)■ Samatosum (closed)■ Sturgeon Lake (closed)■ Winston Lake (closed)</div>
ENERGY USE AND GHG EMISSIONS MANAGEMENT	<div>BHP Billiton Diamonds Inc.:<ul style="list-style-type: none">■ EKATI Diamond Mine</div>

SECTION 3.0:
Statement from the
Community of Interest
Advisory Panel

Contribution of Panel Members

The Community of Interest (COI) Advisory Panel has worked as an external advisory body to the Mining Association of Canada and its member companies since 2004.

Our members participate either as individual experts or as representatives of communities of interest that have a stake in the Canadian mining industry today and into the future.

In the past year we went through our first panel renewal, saying farewell to some of our experienced founding participants and welcoming several new members who bring with them fresh perspectives and expertise. We wish to thank our retiring members—Jim Boucher (Fort McKay First Nation), Elizabeth May (former Executive Director, Sierra Club of Canada), David Scott (CIBC World Markets) and Darren Taylor (Assembly of First Nations)—for contributing their energy, expertise and spirit to the panel's work, and for helping to foster a true desire for mutual understanding and collaboration.

We welcome five new members to our panel: Dan Benoit, Marina Biasutti-Brown, Stephen Kibsey, David Mackenzie and Alan Young. We look forward to the contributions of all of them.

As the external members of the COI Advisory Panel, we greatly appreciate the active participation of the MAC Board members and the representative of the Prospectors and Developers Association of Canada (PDAC) who serve on the panel. Their openness and substantive contributions enhance our debates and give us the opportunity to connect with the member companies that implement TSM.

As panel members, we look forward to increasing our value and relevance to the mining industry, and to our own communities of interest, by having more substantive and in-depth dialogue about key sustainability issues facing the industry. We also look forward to helping bring the TSM performance results to a broader audience.

TSM Performance

TSM focuses on performance improvement in four areas: crisis management planning, energy use and GHG emissions management, external outreach and tailings management. The COI Advisory Panel remains concerned about the level of performance in the area of energy use and GHG emissions management, and will continue to work with MAC to ensure that TSM drives operational performance improvements.

The panel continues to conduct annual post-verification reviews of selected mining companies' verified TSM performance results. These reviews give the panel another means of assessing the effectiveness of the TSM process. They also provide learning experiences for the companies.

Key Issues Ahead

We welcome the progress MAC has made in taking on a second set of TSM performance areas: Aboriginal relations, safety and health, biodiversity and mine closure. These four areas bring together many of the environmental, social and financial aspects of sustainable development.

On Aboriginal relations, we commend the important memorandum of understanding (MOU) signed by MAC and the Assembly of First Nations. We encourage MAC to work with the Inuit Tapiriit Kanatami and the Métis National Council to develop similar MOUs for the Inuit and Métis.

MAC's framework on mining and Aboriginal relations creates what we consider to be a strong commitment to the First Nations, Métis and Inuit peoples of Canada. We will work closely with MAC in its efforts to implement this framework through a better understanding of Aboriginal communities' expectations for how the industry consults with them; through the sharing and application of best practices that build on lessons learned; and through performance measures to assess how well MAC members engage with Aboriginal communities.

As for safety and health, the panel is pleased to see TSM addressing this cornerstone of responsible industry practice by developing a safety and health framework as well as

management system requirements to enable strong safety performance. We would like to see the framework also focus on prevention and management of occupational disease.

We are encouraged by MAC's adoption of a biodiversity conservation framework and the work underway to test biodiversity management indicators. However, we are most interested in how these will be applied, through action plans, to reduce the impacts associated with mines and related infrastructure—for example, the impact of tailings ponds on habitat (water and land) and on wildlife. We emphasize the importance of collecting strong baseline data near mine sites and in broader ecosystems around these sites. We also recognize the role of governments in this activity, as well as the role of MAC members in involving local communities in planning, decision making and monitoring against their plans.

International Application of TSM

We note MAC's new efforts to consider the international application of TSM, which is in line with both MAC's guiding principle to demonstrate leadership worldwide and the level of international activity of Canadian mining companies. We commend MAC and PDAC for their commitment to the

outcomes of the Government of Canada's multi-stakeholder process, the National Roundtables on Corporate Social Responsibility and the Canadian Extractive Industry in Developing Countries. We encourage MAC, as it works through its approach to the international application of TSM, to address the consensus achieved by the industry and other stakeholders in 2006.

Looking Forward

We have seen that TSM has been ably guided by a subset of the MAC Board called the TSM Governance Team. The Governance Team met in June 2008 to look at the future of TSM, in order to ensure that the initiative continues to respond to society's changing expectations for the mining industry and to provide business value to the members of MAC.

We look forward to the results of this effort to re-energize TSM, to ensure that it remains forward-looking and that it provides real benefits to Canadian and international communities of interest—and, of course, to the mining industry itself. This MAC exercise has put us, as an external group of advisors, in the frame of mind to undertake a similarly forward-looking exercise for the COI Advisory Panel, jointly with the MAC members who sit at the Panel table. We have worked together for five years; now it is time to look at our contribution and role as we move forward.

TSM COMMUNITY OF INTEREST ADVISORY PANEL MEMBERS	
Dan Benoit	Métis National Council
Marina Biasutti-Brown	Nunatsiavut Department of Lands and Natural Resources
Richard Briggs	Mining Council, Canadian Auto Workers
Ginger Gibson	University of British Columbia
Larry Haber	Kimberley Community Development Society
Brenda Kelley	Bathurst Sustainable Development
Stephen Kibsey	Caisse de dépôt et placement du Québec
Soha Kneen	Inuit Tapiriit Kanatami
David Mackenzie	United Steelworkers of America
Christy Marinig	Timmins Economic Development Corporation
Alan Penn	Cree Regional Authority
Alan Young	Canadian Boreal Initiative
Gordon Ball	Syncrude Canada Ltd.
Craig Ford	Inmet Mining Corporation
Jim Gowans	De Beers Canada Inc.
Doug Horswill	Teck Resources Limited
Gordon Peeling	The Mining Association of Canada
Eira Thomas	Stornoway Diamond Corporation

SECTION 4.0:
Managing Releases
and Materials

MAC members continue to reduce the substances that their operations release to the air and water, and to improve their environmental performance through the use of new technologies, better controls and more sophisticated monitoring techniques.

The following graphs show members' releases to air and water in 2007 against the base year for eight key substances. While release levels may vary from year to year, influenced by factors such as changing production levels, the trend is still towards meaningful reduction in the releases of these substances.

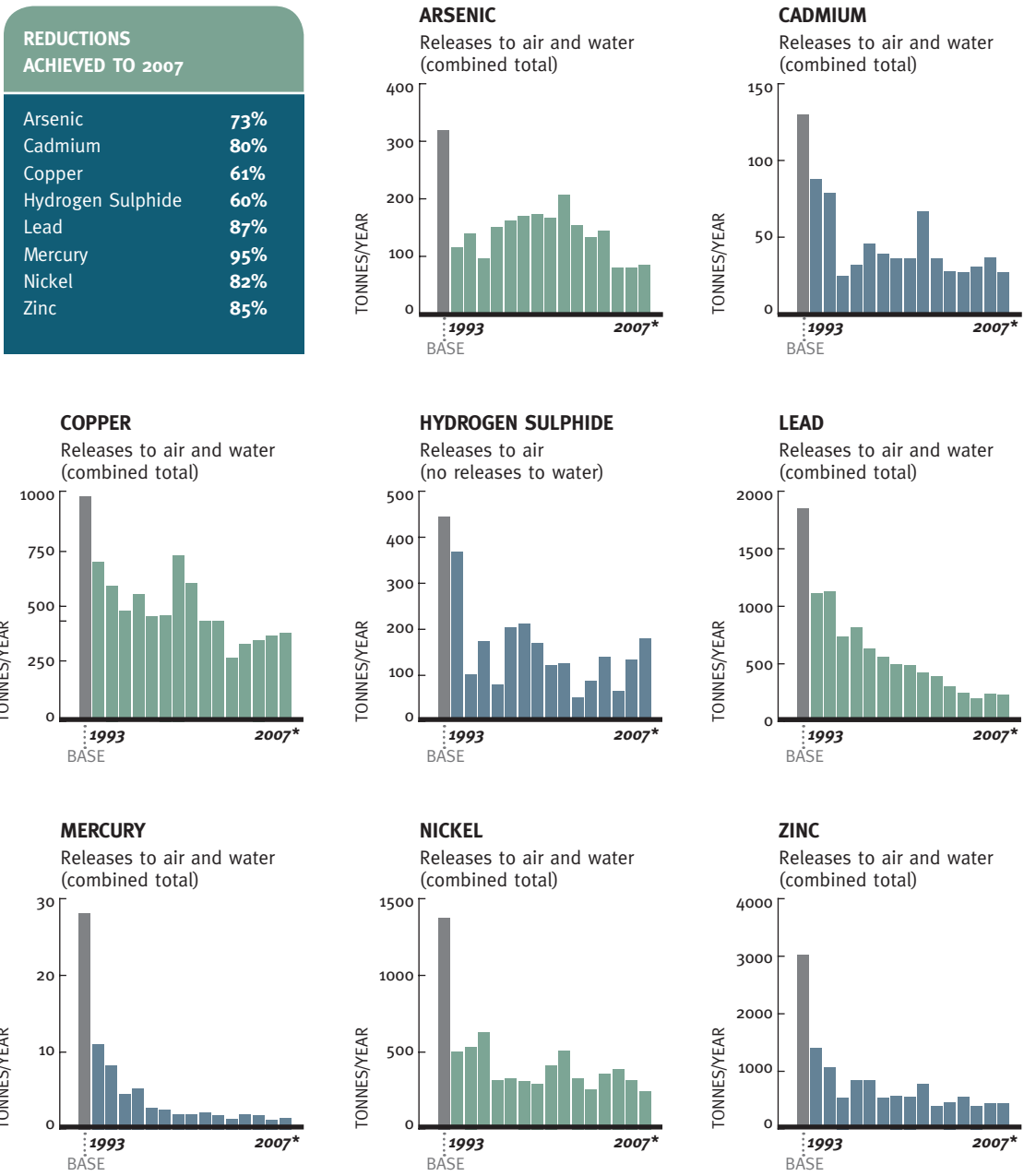
MAC members continue to be involved in community risk assessments—multi-stakeholder processes designed both to determine how releases from past operations affect human health and the environment—and to develop

mitigation strategies. At the same time, MAC is a major sponsor of the Metals in the Human Environment Strategic Network (MITHE-SN), which examines the connection between metals in the environment and the potential for adverse effects on humans (see article on page 18).

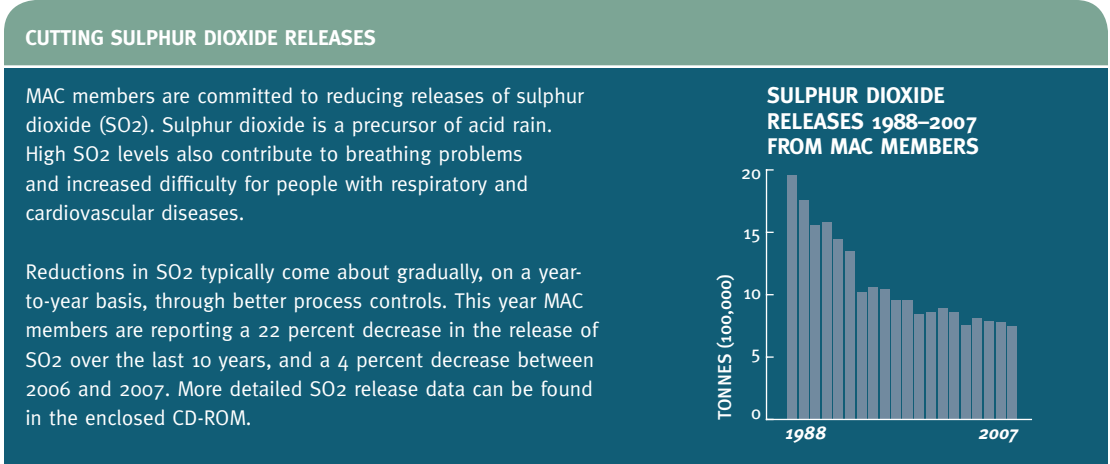
More detailed tables on members' releases of these substances are provided in the enclosed CD-ROM.

Members' energy use and greenhouse gas emissions data are provided in the separate "Greenhouse Gas Progress Report" in the enclosed CD-ROM.

Information on the *Metal Mining Effluent Regulations* and environmental effects monitoring is also provided in a separate bulletin (see CD-ROM or www.mining.ca).



*NOTE: 2004–2007 data are based on NPRI submissions.



SECTION 5.0:

Partnerships Key to Environmental and Social Performance

The Mining Association of Canada has several important partnerships that support the work we do to improve the industry's performance. Our scientific partnerships (MITHE-SN and MEND) focus on metals in the environment, including their relationship to human health, and on acidic drainage and possible solutions to this ongoing challenge. Our community partnerships with non-governmental organizations and Aboriginal peoples are key to maintaining our social licence to operate.

Mine Environment Neutral Drainage (MEND) Program

Since the MEND program began in 1989, it has contributed enormously to understanding acidic drainage and its prevention, and to increasing the transfer of information and technology. Still, acidic drainage remains the most serious environmental issue facing the mining industry, government and the public, with potential liability reaching hundreds of millions of dollars. The mining industry continues to bear annual costs associated with treating acidic drainage.

The MEND program is administered by a small secretariat at CANMET, part of Natural Resources Canada. The program is highly respected, both within Canada and abroad. Canada is the only country to address acidic drainage and metal leaching through a focused research program directed by a multi-stakeholder steering committee from industry, government and NGOs.

Over the past several years, MEND has made great progress in addressing the research priorities identified by the Canadian mining industry; by federal, provincial and territorial governments; and by civil society. Along with research projects, MEND conducts technology transfer activities such as workshops, conferences, presentations and newsletters. It also transfers information through its website (<http://mend.nrcan.gc.ca>).

MEND belongs to a global alliance for acidic drainage research that includes INAP (International Network for Acid Prevention); the US Acid Drainage Technology Initiative; ACMER (Australian Centre for Minerals Extension

and Research); PADRE (Partnership for Acid Drainage Remediation in Europe); and the South African Water Research Commission. This alliance, supported by the major mining multinationals, allows for better global sharing of information, pooling of resources and leveraging of funds. The synergies created by the global alliance further underscore the importance of the MEND program.

The GARD Guide

During 2007–08, the global alliance and INAP made tremendous progress towards producing a global guide to acid rock drainage. The *GARD Guide*, as it will be known, will consolidate current good practices for managing the contaminants produced by sulphide mineral oxidation, and will address how the production of these contaminants can result in acid rock drainage, neutral mine drainage and saline mine drainage. The result will be a practical “how to” summary and state-of-the-art reference for the mining industry, regulators, NGOs and the public.

The draft version of the guide was completed in June 2008, after which the chapters underwent extensive review. A revised draft was reviewed in December 2008, and the document was officially presented at the 8th ICARD (International Conference on Acid Rock Drainage) in Sweden in June 2009.

A more detailed bulletin is available on this topic (see CD-ROM or www.mining.ca).

Metals in the Human Environment Strategic Network (MITHE-SN)

With its diverse partners from industry, government and academia, MITHE-SN is building on the research of its predecessor, MITE-RN (Metals in the Environment Research Network, 1999–2004).

In January 2005 NSERC (Natural Sciences and Engineering Research Council of Canada) awarded MITHE-SN \$5.4 million.

MITHE-SN's research program covers three themes: aquatic ecosystems, soils and plants, and foods and ingested particles. These themes represent a cascade of effects along food webs, from the lowest life forms to the highest consumers. Under each theme, the research projects are driven by the same three objectives:

- distinguishing the magnitude and roles of natural background and human-related metal inputs in biotic exposure to metals
- estimating the bioavailable fraction of metals in the exposure media, thus better quantifying the true exposure concentration
- determining the factors that influence the bioavailability of metals in media so that predictive models can be developed to help create site-specific metals criteria

The past year was a busy one for MITHE-SN and featured a number of information-sharing events.

On March 5 and 6, 2008, at the request of Health Canada, the MITHE-SN secretariat coordinated a workshop and planning meeting in Halifax. The theme was risk assessment data integration.

In mid-May 2008, Dr. Jim McGeer, member of MITHE-SN (aquatic ecosystems theme) and faculty member at Wilfrid Laurier University, coordinated a workshop on biotic ligand modelling. MITHE-SN co-sponsored the workshop with the Copper Development Association, the Faculty of Science at Wilfrid Laurier and the Metals Bioavailability Research Program at McMaster University.

A day and a half of the August 2008 Society of Environmental Toxicology and Chemistry (SETAC) World Congress in Sydney, Australia, was dedicated to highlighting MITHE-SN. As well, the network sponsored the SETAC Pellston technical workshop entitled “Deriving, Implementing and Interpreting Soil Quality Standards for Trace Elements: The Current State of Understanding and Future Developments.”

In September 2008 MITHE-SN, in collaboration with the Royal Military College of Canada and Health Canada's Contaminated Sites Division, organized a workshop on bioaccessibility and bioavailability. Dr. Ken Reimer, co-chair of the BioAccessability Research Canada (BARC) Working Group and faculty member at the Royal Military College, and Professor Beverley Hale, MITHE-SN Science Director and faculty member at the University of Guelph, have led round-robin exercises with 14 research labs to create a path forward for measuring the bioavailability and bioaccessibility of metals in soils.

The network supported four student internships in 2008. The host organizations were the Centre for Ecology and Hydrology (UK); Eurometaux (Belgium); the Centre for

Environmental Stress and Adaptation Research (CESAR), and the Department of Genetics, University of Melbourne (both in Australia); and the Nickel Institute (Belgium). The students' presentations on their internships were the highlight of the January 2009 MITHE-SN symposium. The intern program will continue in 2009.

Finally, Dr. Pat Rasmussen, MITHE-SN investigator under the foods and ingested particles theme, was awarded a U.S. patent for her buoyancy-corrected gravimetric analysis system.

For more information, visit the MITHE-SN website (www.mithe-sn.org).

A more detailed bulletin is available on this topic (see CD-ROM or www.mining.ca).

The Mining Association of Canada's Relations with Aboriginal Peoples

MAC's new framework on Aboriginal relations, developed under the TSM initiative and approved by the MAC Board of Directors in November 2008, commits members to outreach and engagement with Aboriginal communities affected by, or interested in, mining activities on their traditional lands. The framework includes a commitment to building cross-cultural relationships so that industry personnel understand Aboriginal traditions and values. It also includes a commitment to early, timely and culturally appropriate consultation to give Aboriginal communities a better understanding of the nature of mining, its impacts and the benefits that are possible through collaboration.

In response to these commitments, in 2008 MAC and its northern members proposed a new Aboriginal-Industry Mining Forum. Intended to facilitate dialogue and strengthen relationships between the industry and Aboriginal communities in the Northwest Territories and Nunavut, the forum is meant to enhance Aboriginal participation in the industry. The overall objective is to create a vision for the development of sustainable northern communities, with the mining industry involved as a key vehicle for long-term economic security.

Anticipated outcomes of the forum include more cooperative access to mineral resources under mutually agreeable terms, thereby avoiding legal conflict and court challenges. Another goal is for industry and Aboriginal groups to deal with governments cooperatively in order to create a positive investment climate for mining and community development in the North.

The first forum meeting was held January 15, 2009 in Yellowknife and provided the opportunity for Aboriginal and industry representatives to reaffirm their interest and commitment to moving forward with the forum. It

was recognized that mining has contributed substantially to improving the economy and quality of life in northern communities and that exploration and development is fundamental to future community development. For their part, Aboriginal leaders voiced their willingness to “meet industry halfway” and said that they see economic and business development as a way to help sustain their culture and way of life.

The January meeting was facilitated by Terriplan Consultants of Yellowknife. Participating Aboriginal communities and organizations included representatives from the Yellowknives Dene, the Akaitcho Dene of Lutsel Ke', Deh Cho First Nation, Behcho Ko Development Corporation of the Tli Cho government, Denendeh Development Corporation, Deton Cho Development Corporation and the Kitikmeot Inuit Corporation from Nunavut. In addition to MAC's involvement, industry support and participation included the NWT-Nunavut Chamber of Mines, BHP Billiton Diamonds Inc., Rio Tinto Diavik Diamond Mines Inc., De Beers Canada Inc., Canadian Zinc Corporation, Seabridge Gold Inc., Ledcor CMI Ltd., and the Prospectors and Developers Association of Canada (PDAC).

As follow-up to the January meeting a small working group met in March to develop terms of reference for the forum and to identify possible areas of focus for consideration at the next forum meeting, scheduled for later in 2009.

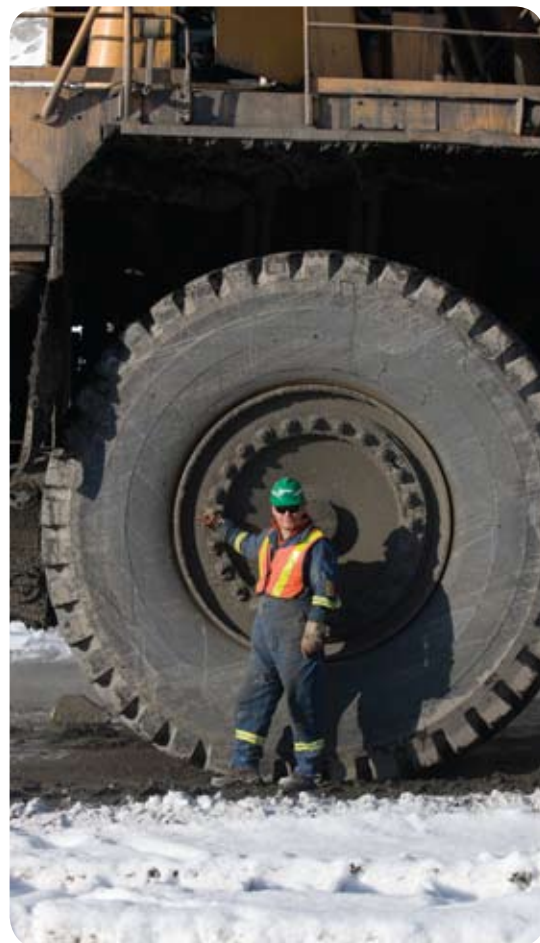
Also significant over 2008–2009 was the continued commitment by MAC and the Assembly of First Nations to work together towards the development of a memorandum of understanding on a new partnership. The signing of the MOU took place at the AFN Inter-Nation Trade and Economic Summit (INTES) at the Metro-Toronto Convention Centre on Monday, March 9 2009. This historic initiative began when the AFN and MAC signed a Letter of Intent in November 2007. The resulting dialogue has built partnerships between individual companies and communities of both organizations and will see the mining industry strengthen its engagement with First Nations economies, creating employment and business opportunities.

The burgeoning relationship between MAC and the AFN led to a number of new joint activities in 2008:

- The AFN took part in a workshop in Gull Bay, Ontario, on the draft TSM framework on mining and Aboriginal peoples.
- MAC appeared before the House of Commons Standing Committee on Aboriginal Affairs and Northern Development on Bill C-30, the specific claims legislation.

- The AFN participated on an advisory committee of MiHR (Mining Industry Human Resources Council) to develop a human resources guide for Aboriginal communities.
- MAC was part of a panel at the AFN's annual general assembly.
- Phil Fontaine, National Chief of the AFN, and MAC's Gordon Peeling toured the De Beers Victor mine in northern Ontario.
- MAC, the Forest Products Association of Canada and PDAC (Prospectors and Developers Association of Canada) joined forces to support the AFN's National Day of Action, with ads in *The Hill Times* and First Nations publications.

MAC and MiHR were also invited to make a presentation at a meeting of some 170 First Nations holders of Aboriginal Human Resources Development Agreements. The presentation, which focused on MAC's efforts to strengthen relationships with First Nations through TSM, referred to the association's work with the AFN. It also highlighted leading mining industry practices and outlined MiHR strategies for enhancing Aboriginal participation in the mining industry.



SECTION 6.0: Responsible Mine Management

MAC and its members are committed to continuous improvement in all aspects of mine management. MAC has worked for years to address the mining industry's legacy of orphaned and abandoned mines through the National Orphaned/Abandoned Mines Initiative (NOAMI). MAC has also worked to reduce mining operations effluents and has supported environmental effects monitoring in aquatic systems. Finally, MAC is working to help members reduce their energy use and greenhouse gas emissions.

Orphaned/Abandoned Mines in Canada

NOAMI has made some important advancements in 2008. It has spent considerable time reviewing legislation across Canada to ensure that the approaches taken to orphaned and abandoned mines are consistent, certain, transparent, coordinated and efficient. This work led to the 2007 release of the *Report on the Legislative, Regulatory, and Policy Framework Respecting Collaboration, Liability, and Funding Measures in Relation to Orphaned/Abandoned, Contaminated, and Operating Mines in Canada*. Work has now begun on a toolkit of policy and legislative approaches for jurisdictions contemplating changes to their policy and legislation for orphaned and abandoned mines.

NOAMI has also been working on a national inventory of active, closed and orphaned/abandoned mines. The inventory will serve as a web-based portal to existing inventories in each province and territory, with an easy-to-use map interface. It will also include a system for categorization and priority ranking of sites. The inventory's official launch has been delayed to allow for testing by various jurisdictions, but the system has been demonstrated to different audiences. The draft version should be available soon to the NOAMI advisory committee. Technology transfer was the number-one priority for NOAMI in 2008, with the secretariat distributing information to a huge mailing list. The NOAMI website (www.abandoned-mines.org) was redesigned and updated with information including NOAMI reports, workshop proceedings, pamphlets, announcements and newsletters. NOAMI has hosted several workshops over the years, and November 2008 saw one

in Vancouver that explored different perspectives on the risk assessment process at orphaned and abandoned mines.

More recently, work has begun on a communications strategy to heighten awareness of legacy issues, NOAMI's work and the initiatives undertaken by federal, provincial and territorial jurisdictions. The strategy includes producing a six-year NOAMI performance report (2002–2008) in time for the 2009 Mines Ministers' Conference.

NOAMI has also launched a community-based pilot project to build communities' capacity to understand abandoned mines. Using a modular toolkit, the project aims to increase capacity in areas such as community engagement, environmental concerns, legal and corporate matters, funding and partnerships, decision making and Aboriginal issues.

In early 2009 members of the NOAMI advisory committee held a strategic planning session. There they looked at past accomplishments and discussed the path forward for NOAMI, identifying gaps as well as future challenges and opportunities for the prevention and remediation of orphaned and abandoned mines.

A more detailed bulletin is available on this topic (see CD-ROM or www.mining.ca).

Metal Mining Effluent Regulations and Environmental Effects Monitoring

The Metal Mining Effluent Regulations (MMER), promulgated under the federal *Fisheries Act*, came into force in 2002 and apply to about 100 metal mines in Canada. The regulations impose effluent discharge limits for cyanide, arsenic, copper, lead, zinc, nickel and radium-226, and prohibit the discharge of effluent that is acutely lethal to fish (rainbow trout). The maximum monthly mean concentration of total suspended solids has been set at 15 mg/L, and the pH range at 6.0 to 9.5. The regulations also require environmental effects monitoring (EEM) to determine whether mine effluent affects fish, fish habitat or the usability of fisheries resources.



The *MMER* provide a process for designating a fish-bearing water body, under certain circumstances, as a tailings impoundment area (TIA) by adding it to Schedule 2 of the regulations. The process is a stringent one, requiring a regulatory amendment, a public comment period and Governor in Council approval. An approved habitat compensation plan is also required to ensure that there is no net loss of fish habitat as a result.

Between 2002 and 2009, six TIAs were added to Schedule 2. They are associated with the Duck Pond mine in Newfoundland, the Doris North and Meadowbank projects in Nunavut, and the Carol mine and Scully mine in Labrador. In addition, in February 2009 proposed amendments were published in the *Canada Gazette* Part I that would do the following:

- include hydrometallurgical processing facilities within the scope of the regulations
- add to Schedule 2 the proposed Sandy Pond TIA for the Voisey's Bay nickel processing plant (Vale Inco) in Long Harbour, Newfoundland

Also in early 2009, Environment Canada hosted a multi-stakeholder consultation for the Ruby Creek molybdenum project (Adanac Molybdenum) in British Columbia. An amendment has been proposed to add upper Ruby Creek to Schedule 2 as a TIA.

For many years MAC has taken the position that the judicious deposit of tailings in natural bodies of water is sometimes the best practice, but that each case must be

considered individually, taking into account site-specific factors. If properly evaluated, implemented and compensated for, subaqueous tailings disposal in lakes can be a safe, environmentally sound and permanent disposal option. Environment Canada and Fisheries and Oceans Canada have agreed with this approach, particularly when it applies to managing potential acid-generating mine wastes. MAC continues to work with its communities of interest to promote a regulatory process that is clear, practical and transparent, while maintaining the highest environmental standards.

Turning to EEM, this program is divided into two parts: an annual reporting requirement for studies on water quality, and a more complex assessment based on biological monitoring. The first phase of biological monitoring was completed in June 2006. Since then Environment Canada has conducted a national assessment of the program's effectiveness, and a multi-stakeholder committee has reviewed the overall program, making 42 recommendations. The results of the national assessment are posted on Environment Canada's website. MAC is working with Environment Canada to address the recommendations made by the review team.

A more detailed bulletin is available on this topic (see CD-ROM or www.mining.ca).

MAC's Energy and GHG Emissions Management Guidance Document

In 2008 MAC finalized a new guidance document to help companies with energy and greenhouse gas emissions

management. The new *Energy and GHG Emissions Management Guidance Document* updates and broadens an earlier guide from 2000. MAC hopes the new document will become a convenient reference for companies seeking success stories, guidelines, checklists, TSM support, management advice and other information to help them use energy more efficiently and improve their GHG emissions.

The guidance document was finalized at an interesting moment in the evolution of Canadian mining. The huge fluctuation in energy prices over the past year, with oil moving from \$140 a barrel to \$40, has reminded companies of the large amount of money they regularly spend on energy and the potential for energy prices to climb again in the future. The mineral price turbulence and global economic uncertainty of this past year have caused companies to "batten down the hatches" and find ways to cut costs. Energy consumption, one of the three greatest costs for mining companies, ranks high on the list.

As for climate change regulation, while at the federal government level there remain questions concerning future regulation, there are some signs of movement towards the concept of pricing carbon. Statements by U.S. President Barack Obama also suggest some momentum towards attaching a price to carbon. One component of Obama's energy plan is to implement an economy-wide cap and trade program to reduce GHG emissions by 80 percent by 2050. It seems likely that companies will someday operate within a Canada-U.S. GHG emissions trading scheme, complete with targets, regulations and costs.

For these and other reasons, MAC's *Energy and GHG Emissions Management Guidance Document* is a timely addition to the toolbox of Canadian mining companies. The document discusses the TSM energy/GHG protocol and the related need for management systems, target setting, planning, metering and measuring, reporting and verification. It also covers the concept of a carbon footprint and GHG emissions inventory, and includes information on incentive programs, energy management websites and regional GHG programs.

The guidance document can be downloaded free of charge from the MAC website (www.mining.ca).



SECTION 7.0:
Highlights of
Company Actions

ArcelorMittal Mines Canada

ArcelorMittal Mines Canada is a leading Canadian supplier of iron ore products to the international steel market, generating nearly 40 percent of total Canadian production. Active mostly in the mining and primary processing sector, the company owns and operates major facilities in Quebec. Its mining and concentrating facilities in Mont-Wright, near Fermont, Quebec, are linked by a 420-kilometre railway to the company's industrial complex in Port-Cartier, which includes a pellet plant, a private harbour, railroad shops and the company's headquarters.

As a member of the Mining Association of Canada, ArcelorMittal Mines Canada is committed to ongoing improvement through TSM. To this end, the company submitted its self-assessed results for external verification for the first time in 2008. As well, its entire environmental management system was certified ISO 14001 in 2004.

In 2008 ArcelorMittal identified worker health and safety as its leading priority for sustainable development. The company's efforts led to a 40 percent improvement in performance, exceeding the 30 percent improvement target set for this area. Improvement will continue in 2009 as the company aims for a further 20 percent reduction in the number of health and safety incidents at its facilities, the ultimate goal being to eliminate all such incidents.

ArcelorMittal's pellet plant in Port-Cartier already uses about 30 percent less energy per tonne of production than its Brazilian competitors, but the company is striving to improve the plant's energy efficiency further. The company is also working to ensure that its facilities meet future regulatory requirements for reducing GHG emissions while at the same time reducing production costs.

In the area of tailings, studies conducted in 2008 on the revegetation of lands surrounding the company's tailings facilities at Port-Cartier will lead to the development of an action plan over the next few years.

Heavily involved in the community for over 50 years, ArcelorMittal is now formalizing its engagement framework and its relationships with communities of interest. To help with this process, the company is applying system-based management principles inspired by ISO 14001.

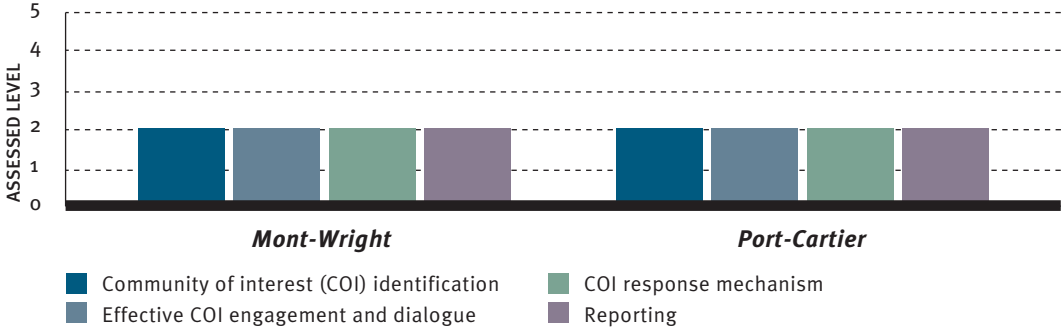
Despite great concerns arising from the current economic situation, ArcelorMittal Mines Canada still firmly believes it must pursue its efforts to improve through TSM.

For more information, please visit the ArcelorMittal Mines Canada website at (www.arcelormittal.com/minescanada).

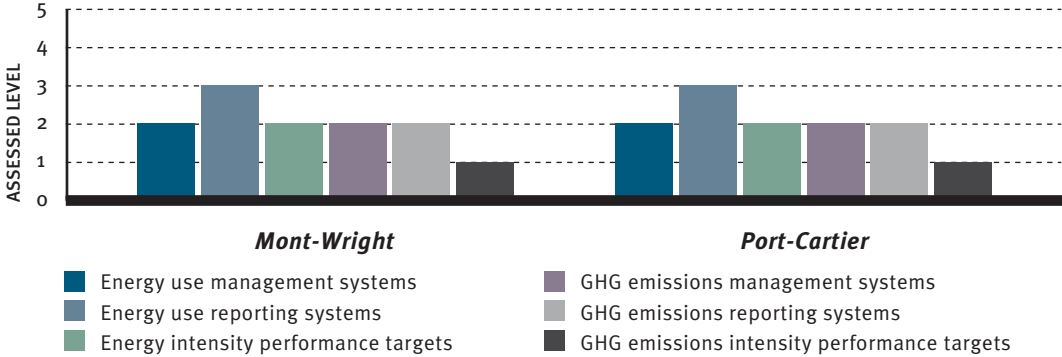
Crisis Management Planning Assessment
ArcelorMittal Mines Canada

	Crisis management preparedness	Review	Training
Corporate	No	Yes	Yes
Mont-Wright	No	Yes	Yes
Port-Cartier	No	Yes	Yes

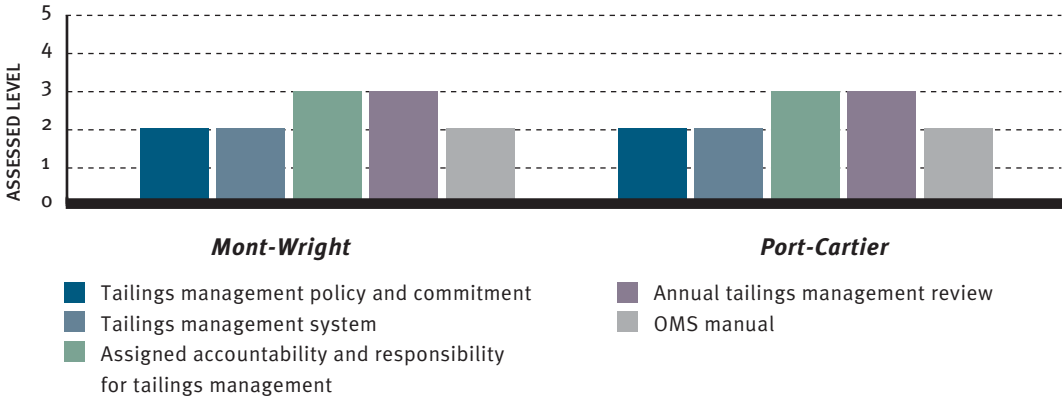
External Outreach Assessment
ArcelorMittal Mines Canada



Energy Use and GHG Emissions Management Assessment
ArcelorMittal Mines Canada



Tailings Management Assessment
ArcelorMittal Mines Canada



Barrick Gold Corporation

In early 2008 Barrick’s Hemlo operation (Marathon, Ontario) underwent independent third-party verification of its progress towards implementing the TSM program. The verification was a thorough review of the facility’s program in all four TSM performance areas: tailings management, external outreach, crisis management planning, and energy use/GHG management.

Hemlo’s overall goal for the TSM program was twofold. First, the facility wanted to continuously improve during the initial two years of self-evaluation. Second, it aimed to achieve a minimum of Level 3 for each TSM indicator when verified by the third-party evaluator during the third year of TSM.

A comprehensive review of the final verification results shows that Hemlo was successful in meeting its overall goal of a minimum ranking of 3 for each indicator. The facility achieved a 95 percent success rate, with 74 of the 78 indicators ranked at least at Level 3. The four indicators that did not reach this threshold were ranked at Level 2.

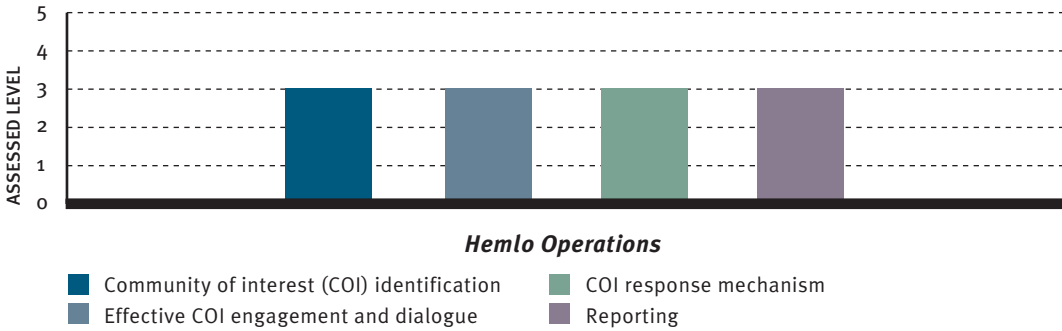
The most difficult performance area for Hemlo has been energy use/GHG management. The Hemlo mine has operated for nearly a quarter of a century, during which time a wide distance has developed between the underground operations and the overall depth has increased. It has been difficult to establish energy intensity targets because increased energy is needed to access the greater distances and depths. This situation, coupled with unexpected changes in rock hardness, means that energy intensity targets are subject to change because of the geometry and nature of the mine and the rock itself. Though the challenge is daunting, Hemlo nevertheless hopes to continue improving its energy efficiency and performance targets.

For more information, please visit Barrick’s website at (www.barrick.com).

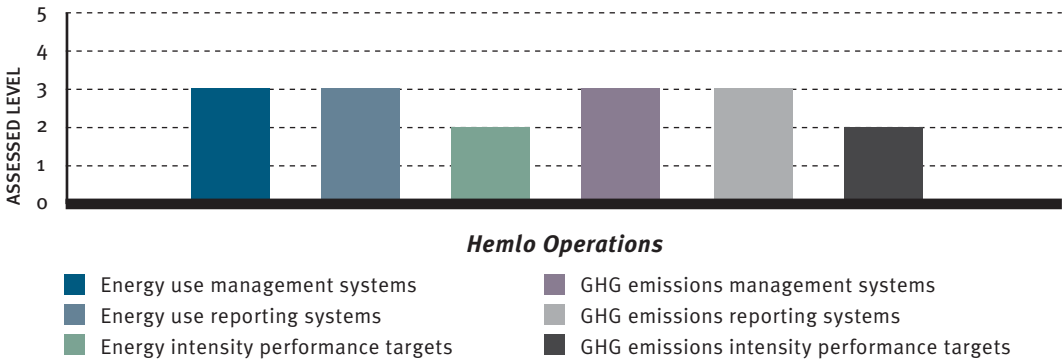
Crisis Management Planning Assessment
Barrick Gold Corporation

	Crisis management preparedness	Review	Training
Corporate	Yes	Yes	Yes
Hemlo Operations	Yes	Yes	Yes

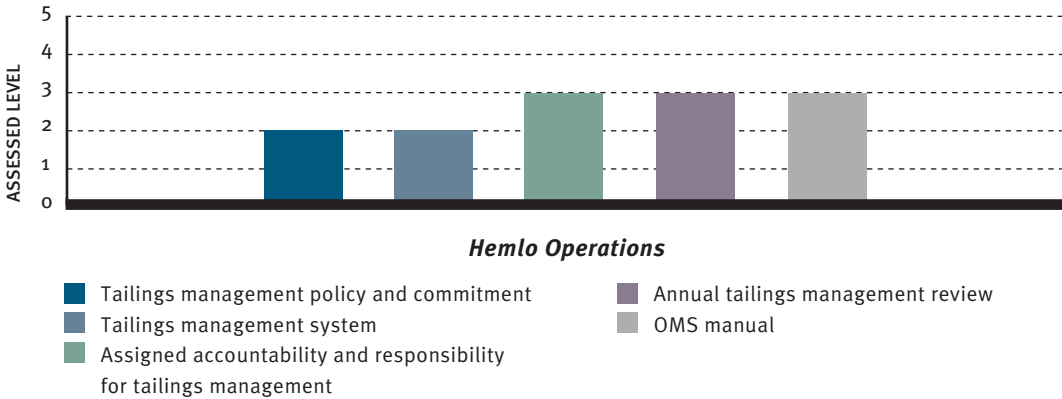
External Outreach Assessment
Barrick Gold Corporation



Energy Use and GHG Emissions Management Assessment
Barrick Gold Corporation



Tailings Management Assessment
Barrick Gold Corporation



BHP Billiton Diamonds Inc.

The EKATI diamond mine, operated by BHP Billiton Diamonds Inc., is a joint venture between BHP Billiton (80 percent) and founding geologists Charles Fipke and Stewart Blusson (10 percent each). Located about 300 kilometres north of Yellowknife, the mine operates in an area of continuous permafrost.

The EKATI mine is working towards zero harm: to its own people, through consistent, risk-based work practices; to its host communities, through communication and inclusion of their opinions and concerns in the mine plan; and to the environment, through innovative adaptive management and intensive monitoring of the mine's impact. EKATI will consider itself successful when it achieves zero harm, when it is valued by its host communities and when it provides lasting social, environmental and economic benefits to society.

BHP Billiton uses TSM reporting as part of a suite of tools that drive continued improvement across the company's operations. There is extensive internal and external monitoring and auditing of all sustainable development practices at EKATI, and the TSM initiative draws many of these processes into a forum for wider reporting across Canada. The extra level of self-regulation adds value because processes are reviewed from a different perspective than would be the case under other Health, Safety, Environment and Community (HSEC) and International Organization for Standardization (ISO) audits.

The following is a summary of the company's results and activities in the past year under each of the four TSM performance areas.

- **Crisis management planning:** Results from the current year of assessment and verification showed improvements in this area, including significant review, updating and testing of the documentation and planning.

- **Energy use and greenhouse gas emissions management:** This area was again scored and verified highly, indicating that good management and reporting systems are in place.
- **External outreach:** The 2008 verification process confirmed the company's good work in this area, which has improved the recording of engagement and dialogue with all stakeholders.
- **Tailings management:** Management of the processed kimberlite containment facilities is covered through a series of management reports provided under the applicable water licence. The company's scores in this area over the past few years have changed very little. A gap analysis will be carried out to identify why.

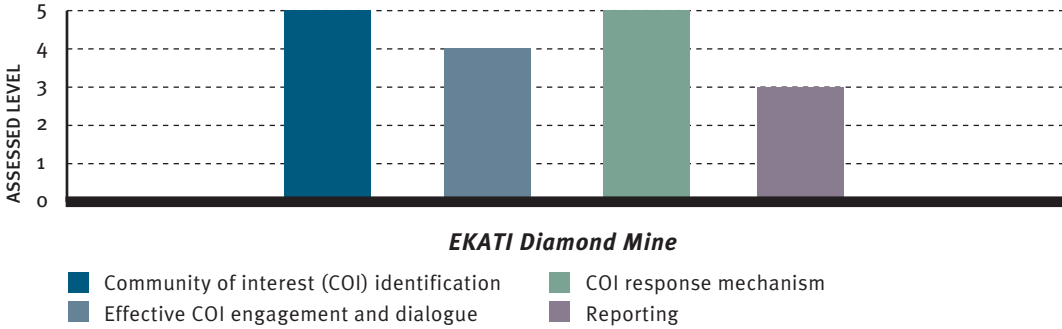
BHP Billiton is proud of the environmental protection, community involvement and sustainable business development it has achieved during 10 years of operating the EKATI diamond mine. The company intends to broaden its investment by examining other northern projects and extending the life of the EKATI mine beyond 2020.

For more information, please visit the BHP Billiton Diamonds Inc. website at (www.bhpbilliton.com).

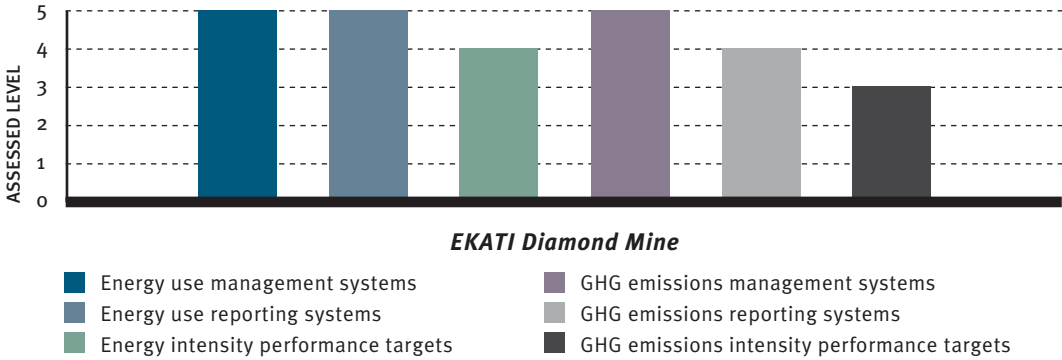
Crisis Management Planning Assessment
BHP Billiton Diamonds Inc.

	Crisis management preparedness	Review	Training
Corporate	No	No	Yes
EKATI Diamond Mine	No	No	Yes

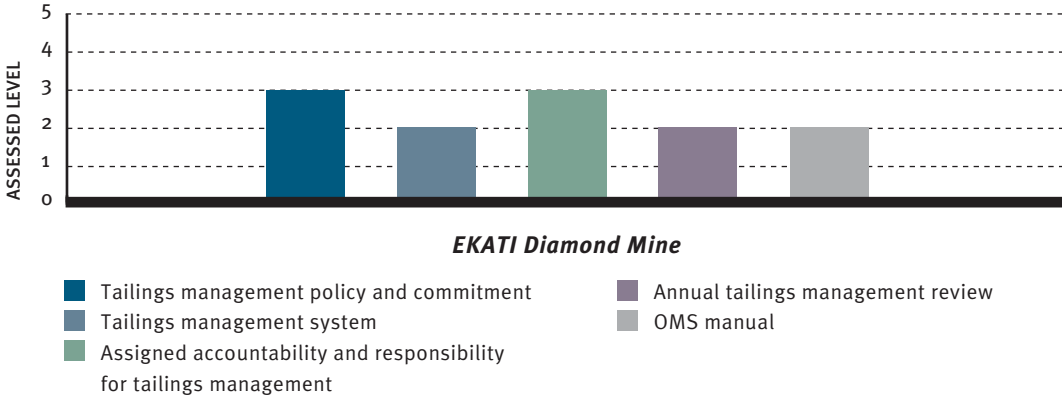
External Outreach Assessment
BHP Billiton Diamonds Inc.



Energy Use and GHG Emissions Management Assessment
BHP Billiton Diamonds Inc.



Tailings Management Assessment
BHP Billiton Diamonds Inc.



Diavik Diamond Mines Inc.

The Diavik diamond mine, located 300 kilometres northeast of Yellowknife, consists of two operational open pits and one underground mine that is under development. Diavik is headquartered in Yellowknife, as is the product-splitting facility where diamonds are cleaned and sorted. Once again this year, Diavik is pleased to report on its programs that support the TSM initiative.

Diavik has a disaster management and recovery plan, supported by a team from the mine and the corporate office in Yellowknife. Disaster management simulations are conducted at both locations.

Access to the mine is by air only, except for about 10 weeks when there is access via the winter ice road. This is a key logistical challenge for immediate disaster response. Installation of a microwave link between Yellowknife and the mine in 2008 has improved communication between the two locations.

Diavik has a unique external outreach program. One of the program's successes is the Environmental Monitoring Advisory Board, which brings together Diavik, representatives from the five Aboriginal groups the company has signed agreements with, and officials from the Canadian and Northwest Territories governments. Although not a signatory, the Nunavut government is also represented. Regular meetings of the board at various community locations encourage open communication among the parties.

Diavik recovers diamonds from kimberlite and disposes of waste ore in a processed kimberlite containment facility (PKC, or tailings pond). In 2008 Diavik determined that it would be viable to recover diamondiferous material from the PKC. The challenge in doing so will be to dredge the PKC without impeding the vital role it plays in maintaining the balance and quality of mine water.

Energy at Diavik is supplied completely by diesel-fired generators, which are the primary source of GHG emissions. From 2003 to 2008 Diavik was an open-pit mine with relatively constant GHG emissions. But now, as the company moves underground, it is facing new energy demands. To

minimize GHG releases, Diavik will need to optimize its mining and ore-processing methods and maximize the efficiency of its equipment. Diavik is committed to keeping greenhouse gases low through reduction initiatives.

Diavik's operations employed an average of 808 people in 2008. Of these, 540 (or 67 percent) were priority-hired Aboriginal and non-Aboriginal northern workers. Diavik and its contractors employed nineteen northern and Aboriginal apprentices, exceeding commitments to carry from eight to eighteen. Four northerners achieved journeyperson designation in 2008, bringing the total trained to date to seventeen. At year end fourteen northern staff had completed Diavik's unique Aboriginal Leadership Development Program, raising the number of graduates from the program to forty-two.

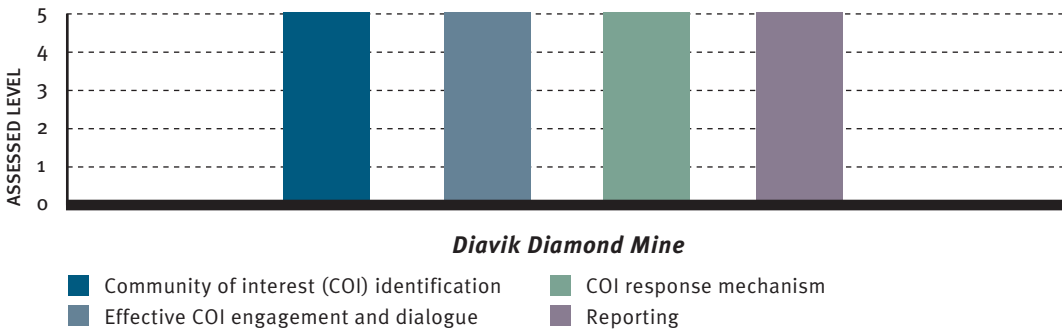
Diavik has also contributed greatly to the local economy. Some 70 percent of the company's combined capital and operating expenditures in 2008 went to northern businesses. Of these northern expenditures, 50 percent went to Aboriginal businesses. Cumulative local spending to date is \$3 billion, 73 percent of the company's total.

For more information about the Diavik diamond mine and its environmental commitments, visit the company's website at (www.diavik.ca).

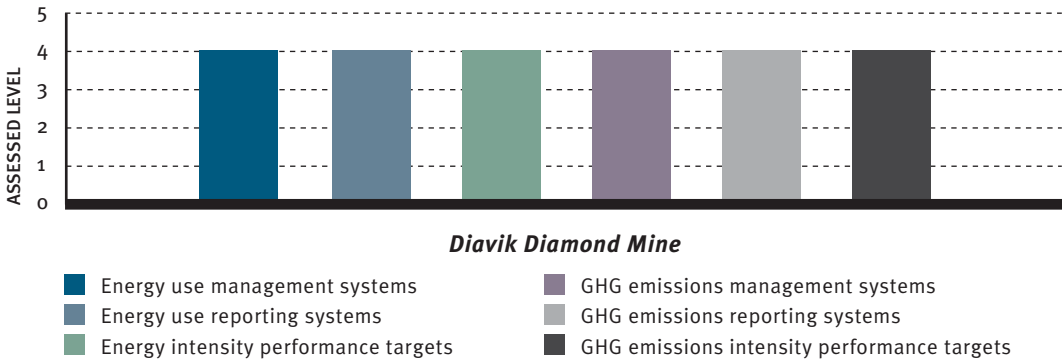
Crisis Management Planning Assessment
Diavik Diamond Mines Inc.

	Crisis management preparedness	Review	Training
Corporate	Yes	Yes	Yes
Diavik Diamond Mine	Yes	Yes	Yes

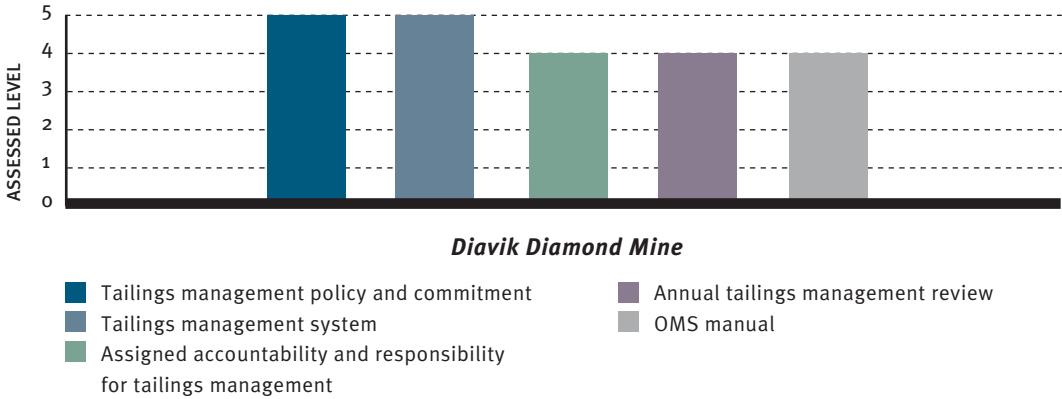
External Outreach Assessment
Diavik Diamond Mines Inc.



Energy Use and GHG Emissions Management Assessment
Diavik Diamond Mines Inc.



Tailings Management Assessment
Diavik Diamond Mines Inc.



HudBay Minerals Inc.

HudBay Minerals is an exploration, mining and processing company. Its wholly owned subsidiary, Hudson Bay Mining and Smelting Co., Limited (HBMS), operates integrated facilities in Flin Flon and Snow Lake, Manitoba, as well as Zochem, located in Brampton, Ontario. The integration of HBMS's operations allows for its TSM data to be integrated into one facility report.

HudBay made several improvements to its TSM performance in 2008. The corporate crisis management plan was revised to reflect personnel changes. The notification system was tested twice, leading to further improvements to the plan. The plan is under revision again to reflect the most recent personnel changes; it will require updates to contact lists and training for new staff. To obtain a "yes" for the third indicator in this performance area, the company will schedule a table-top crisis simulation in 2009.

Thanks to an internal audit and resulting amendments to the tailings management program, HudBay's score for the tailings management indicator increased from Level 3 to Level 4. The amendments included a complete rewrite of the operation, maintenance and surveillance manual to address changes to the system because of expansion of the tailings facility.

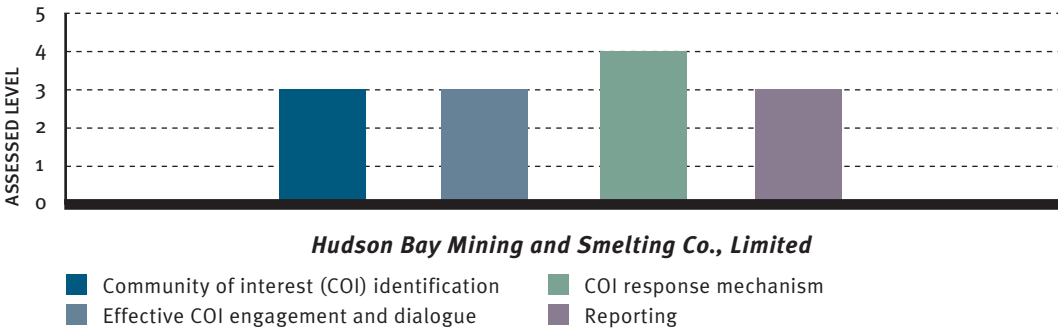
Despite several organizational changes and the shift in responsibilities they brought, HudBay maintained a Level 3 for the remaining two performance areas. The company is contemplating internal audits specific to the energy use and greenhouse gas emissions indicator for 2009.

For more information, please visit the HudBay Minerals Inc. website at (www.hudbayminerals.com).

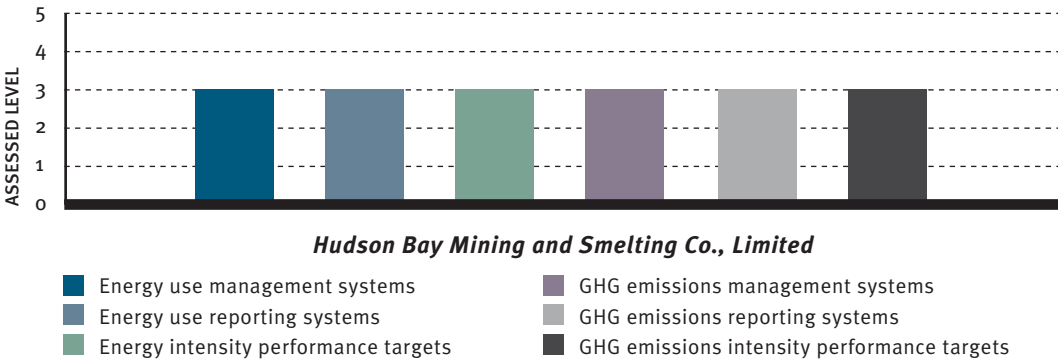
Crisis Management Planning Assessment
HudBay Minerals Inc.

	Crisis management preparedness	Review	Training
Corporate	Yes	Yes	No
Hudson Bay Mining and Smelting Co., Limited	Yes	Yes	Yes

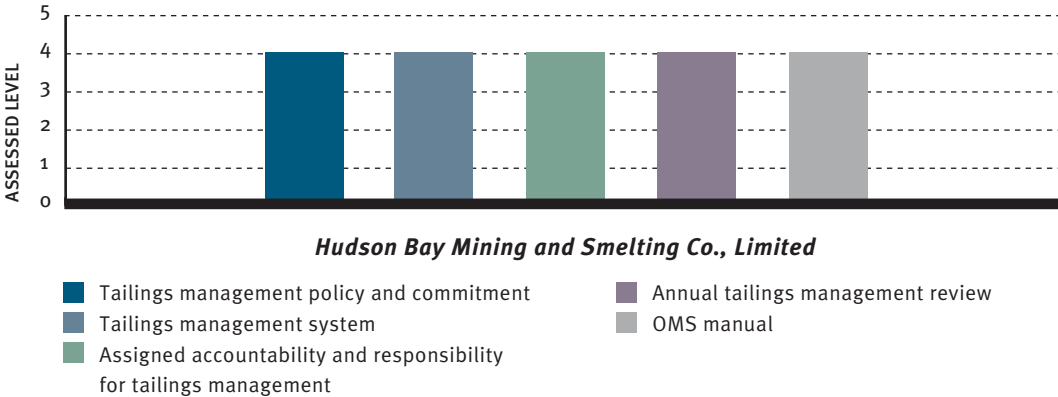
External Outreach Assessment
HudBay Minerals Inc.



Energy Use and GHG Emissions Management Assessment
HudBay Minerals Inc.



Tailings Management Assessment
HudBay Minerals Inc.



IAMGOLD Corporation

IAMGOLD is a leading mid-tier gold producer, with one niobium and two gold operations in Canada, one in South America and Africa, and four joint ventures in Africa. Counting all its explorations, projects and operations, IAMGOLD is present in sixteen countries on three continents.

In 2008 IAMGOLD introduced its vision of zero harm, challenging employees to achieve the highest level of performance in health, safety and sustainability. The early results of this vision are exemplary: zero fatalities in 2008 and a 24 percent reduction in total accident frequency. The number of lost-time accidents and injuries requiring medical attention was also substantially reduced. The company's operations and projects reported no significant environmental or community impacts.

Since joining MAC in 2007, IAMGOLD has worked to incorporate TSM into its operations and projects world-wide. In 2008, the company's second year reporting under TSM, its operations continued to improve performance in ways that align with the initiative.

IAMGOLD underwent external verification of its 2008 TSM results. The lessons learned from the verification process are helping the company determine where it needs to improve performance, especially as individual operations gain a better understanding of TSM and the related indicators.

External verification showed good progress and improvements under the external outreach performance element. Results for tailings management remained strong, with some sites achieving high levels. Performance on energy use and GHG emissions management remained the weakest area overall, and is one for future focus. The company's increasing energy use and GHG emissions are due to a combination of production increases, longer haulage distances, incorporation of development projects and greater energy use as the underground mines move to deeper levels. IAMGOLD's operations continue to improve their operational efficiencies and to introduce projects that focus on energy savings.

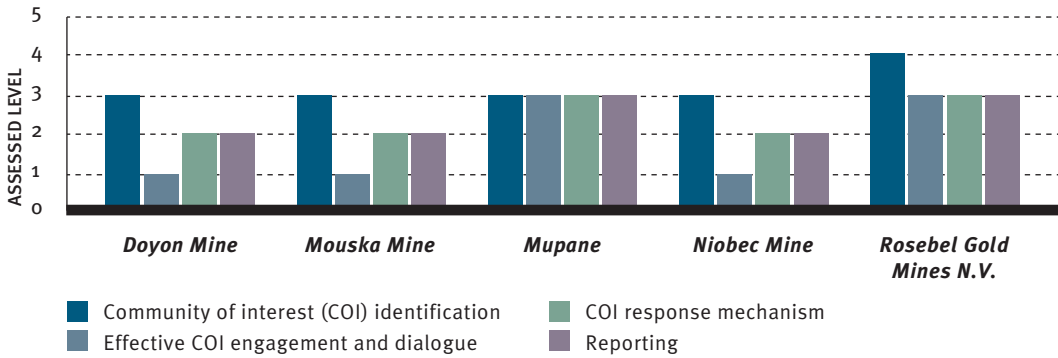
In 2009 IAMGOLD will work to raise specific indicators to a higher level as part of the company's continuous improvement. These efforts will include the area of crisis management planning, where the company will aim to enhance its current plans and preparedness.

For more on IAMGOLD's sustainability programs and progress, including the company's 2008 Health, Safety and Sustainability Report, visit (www.iamgold.com).

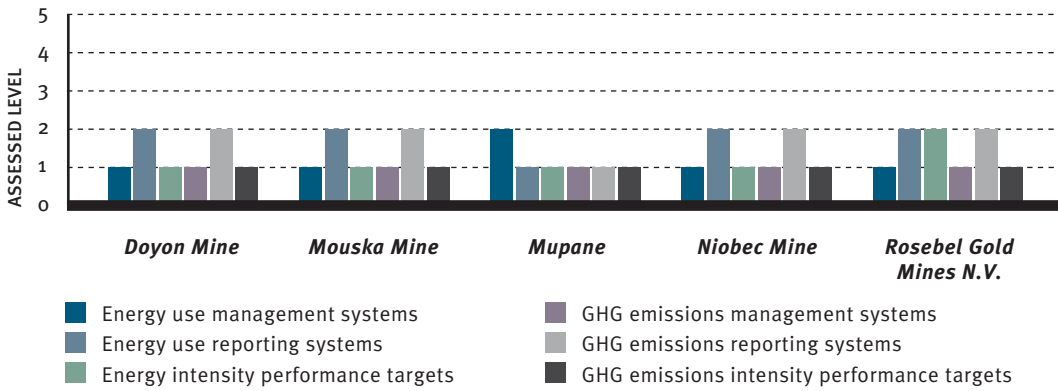
Crisis Management Planning Assessment
IAMGOLD Corporation

	Crisis management preparedness	Review	Training
Corporate	Yes	Yes	No
Doyon Mine	No	No	No
Mouska Mine	No	No	No
Mupane	Yes	Yes	Yes
Niobec Mine	No	No	No
Rosebel Gold Mines N.V.	Yes	Yes	Yes

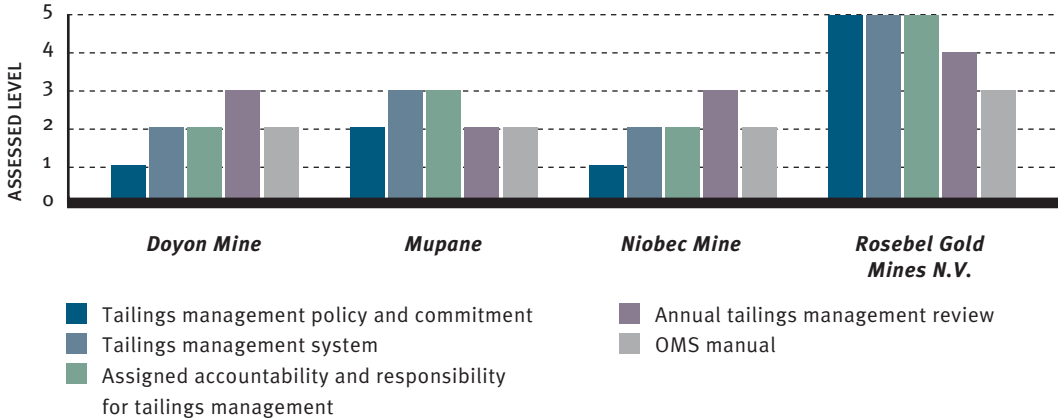
External Outreach Assessment
IAMGOLD Corporation



Energy Use and GHG Emissions Management Assessment
IAMGOLD Corporation



Tailings Management Assessment
IAMGOLD Corporation



Inmet Mining Corporation

Inmet uses TSM as one tool in its risk management toolbox to improve its operational performance in priority risk areas. Inmet's responsible growth depends on establishing and maintaining a sound reputation, one that can be demonstrated wherever the company operates.

Inmet made progress this year in managing risks under all four TSM performance elements. The company's 2008 results were determined through self-assessment, then verified by a MAC-certified external verifier. Despite some improvement, Inmet's performance scores have changed little in the past few years. The company has increased communication among its operating sites about using TSM as a risk management tool to drive performance, and will continue to share successes and challenges.

Tailings Management

Pyhäsalmi (Finland) implemented its tailings OMS manual in 2008 and raised its score on the relevant indicator to Level 3. Although this process took longer than anticipated, Inmet is using its experience with Pyhäsalmi and closed properties to help revise the OMS manual for Troilus (Quebec), develop one for Çayeli (Turkey) and make better use of manuals among the company's operators.

During 2008 Çayeli, whose management systems are under review, identified the need for further detailed system documentation for tailings management. This gap resulted in decreased scores.

External Outreach (Community Dialogue)

Las Cruces (Spain) improved its community identification, engagement and response scores because of its focus on better community relations during the final phase of project development. Troilus continued to build on its working relationships with Cree and community neighbours, meeting with them in 2008 about closure planning. As a result, community feedback was integrated into the mine closure and TSM scores were higher.

During 2008 Inmet began using Anglo American's Socio-Economic Assessment Toolbox, or SEAT, at most of its operations and closed properties. The company will use SEAT to help establish community development strategies.

Crisis Management Planning

All of Inmet's sites completed crisis simulation exercises and crisis plan reviews during 2008. This led to improved scores at Pyhäsalmi, Las Cruces and the company's head office. Inmet plans to improve training and testing further as it implements the company's safety, environmental and community affairs standards.

Energy Use and Greenhouse Gas Emissions Management

Inmet's energy and greenhouse gas performance began to improve in 2008. Pyhäsalmi, Çayeli and the closed properties all developed energy conservation plans. In 2008 Pyhäsalmi, which regularly measures and improves its energy use, achieved its target for energy intensity at the site, scoring Level 3 on that indicator.

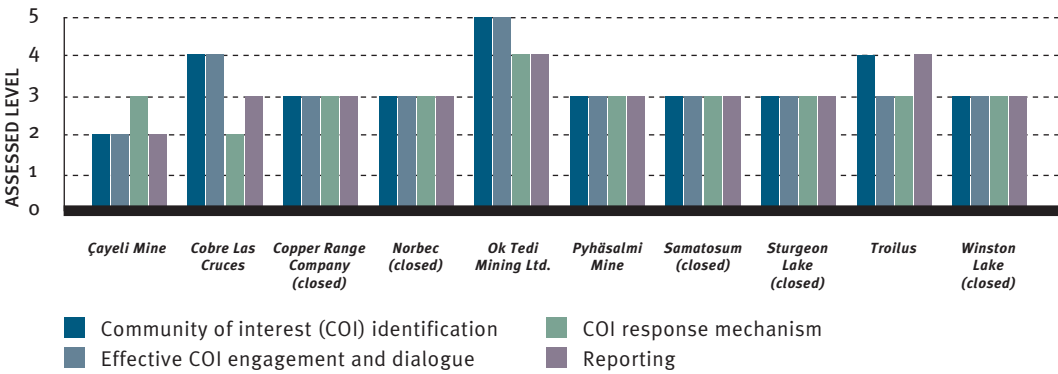
Inmet still participates in the Carbon Disclosure Project. The company's five-year target of a 10 percent reduction in energy and GHG intensity has been incorporated into management's personal objectives.

For more information, please visit the Inmet Mining Corporation website at (www.inmetmining.com).

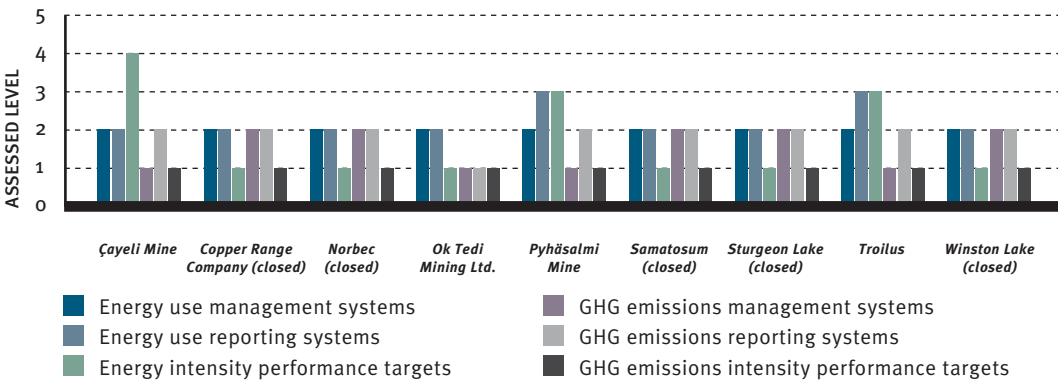
Crisis Management Planning Assessment
Inmet Mining Corporation

	Crisis management preparedness	Review	Training
Corporate	Yes	Yes	Yes
Çayeli Mine	Yes	Yes	Yes
Cobre Las Cruces	Yes	Yes	Yes
Copper Range Company (closed)	Yes	Yes	Yes
Norbec (closed)	Yes	Yes	Yes
Ok Tedi Mining Ltd.	Yes	Yes	Yes
Pyhäsalmi Mine	Yes	Yes	Yes
Samatosum (closed)	Yes	Yes	Yes
Sturgeon Lake (closed)	Yes	Yes	Yes
Troilus	Yes	Yes	Yes
Winston Lake (closed)	Yes	Yes	Yes

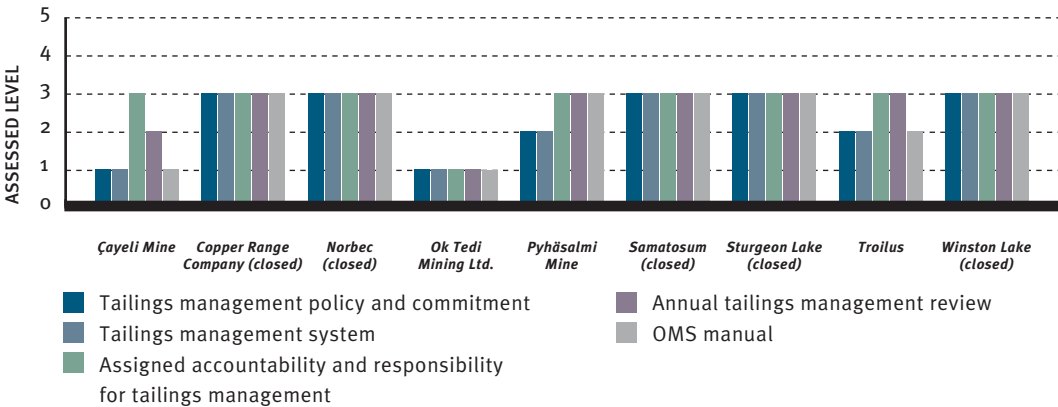
External Outreach Assessment
Inmet Mining Corporation



Energy Use and GHG Emissions Management Assessment
Inmet Mining Corporation



Tailings Management Assessment
Inmet Mining Corporation



Iron Ore Company of Canada

IOC is the largest producer of iron ore pellets in Canada and one of the leading producers of iron ore pellets and concentrate in the world. The company currently employs over 1,900 people in its mine, milling and pelletizing facility in Labrador City, Newfoundland and Labrador; its deep-water port facility in Sept-Îles, Quebec; and the 418-kilometre rail corridor that connects the two sites.

IOC is committed to improving the sustainability of its operations. The company's performance is guided by the sustainable development principles in the IOC 2009–2013 strategic plan, "The IOC Way Forward." Performance is also driven by Rio Tinto standards and policies, stakeholder engagement, federal and provincial regulations and industry initiatives like Towards Sustainable Mining.

Community Consultation

IOC is committed to engaging stakeholders in the communities where it operates. With the help of key communities of interest, the company has mapped out the impacts of its operations on the community and on stakeholders.

The Community Advisory Panel (CAP), made up of key community stakeholders, meets three times a year in both Labrador City and Sept-Îles facilities to discuss IOC's operations and issues of common concern. Working groups associated with the CAP meet regularly between these meetings to collaborate on addressing key issues and meeting expectations.

In 2008 IOC undertook several community engagement activities related to its planned expansion. Among them were the development of a social baseline assessment and ongoing dialogue with key stakeholders, directly or via the CAP process. Although IOC has a process in place for community complaints and response, a plan to improve this mechanism is being determined.

Disaster and Emergency Management

IOC's disaster management and recovery plan covers important threats and risks in relation to environmental safety and health and critical risk assessments.

IOC revises the plan regularly and coordinates the plan and its revisions with other key emergency response and community stakeholders. Although both facilities have plans in place, a plan for the corporate office in Montreal is being developed in 2009.

Tailings Management

Both facilities have a tailings management policy and annual reviews in place; however, improvements are needed. A plan is in place to bring IOC into conformance with MAC standards.

In 2008 the culmination of IOC's From Tailings to Biodiversity initiative saw the company invest \$120 million in research, consultation and implementation of an industry-leading flocculation and revegetation project. The project has resulted in rapid improvement of lake and downstream water quality, enhancement to the tailings terrestrial habitat and the creation of long-term environmental monitoring programs.

Energy Use and GHG Management

Management of energy use and greenhouse gas emissions is a high priority for IOC. The company has set energy performance targets for Labrador City and Sept-Îles, and has implemented an energy use management system that is subject to external verification. In addition, IOC maintains an energy use reporting system that is internally verified through parent company Rio Tinto's corporate audit program.

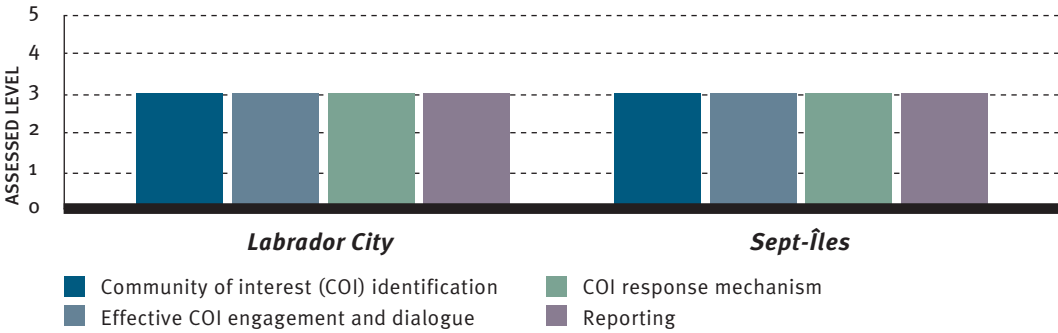
Strategies are underway to improve energy efficiency and reduce greenhouse gases in key areas like the pellet and steam plants. IOC delegates responsibility for GHG reductions and has recently hired an energy manager to focus on reduction initiatives. The 2008 GHG emissions intensity performance targets for both facilities were met or exceeded.

For more information, please visit the Iron Ore Company of Canada website at (www.ironore.ca).

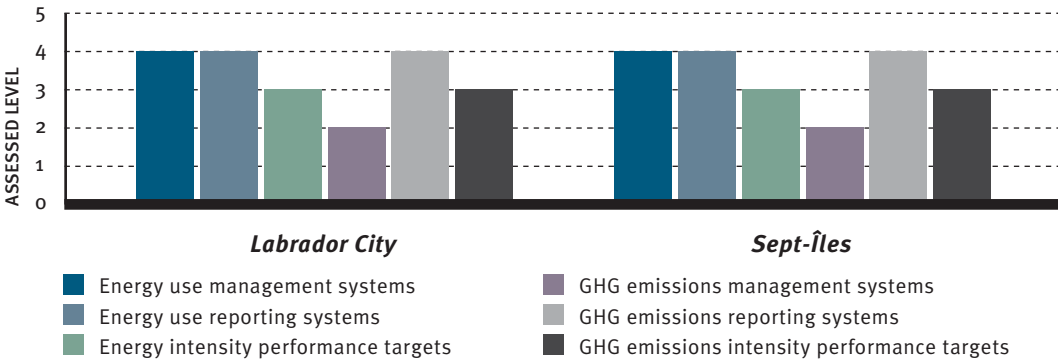
Crisis Management Planning Assessment
Iron Ore Company of Canada

	Crisis management preparedness	Review	Training
Corporate	No	No	No
Labrador City	Yes	Yes	Yes
Sept-Îles	Yes	Yes	Yes

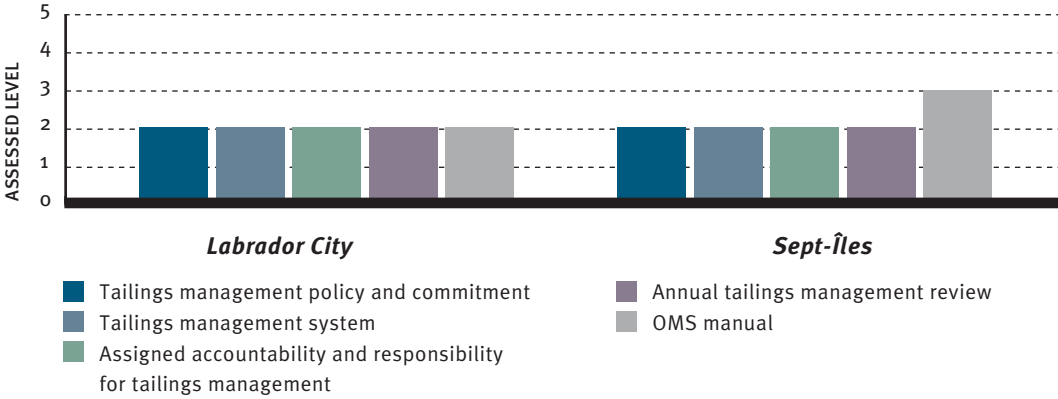
External Outreach Assessment
Iron Ore Company of Canada



Energy Use and GHG Emissions Management Assessment
Iron Ore Company of Canada



Tailings Management Assessment
Iron Ore Company of Canada



North American Palladium Ltd.

North American Palladium is Canada's only primary producer of platinum group metals. The company's Lac des Îles open-pit and underground mine, 85 kilometres northwest of Thunder Bay in northern Ontario, is among the largest palladium mining operations in the world today.

It was a year of ups and downs for North American Palladium in 2008. The Lac des Îles mine, the company's only operation, was shut down on October 21 under a care and maintenance program. This decision was based entirely on low metal prices and the looming economic downturn.

Nonetheless, North American Palladium continued to move ahead with improvements begun in 2007. Prior to the shutdown, the company completed its new tailings management facility. It also finalized a comprehensive spills response procedure, which included training of all supervisors and a table-top exercise planned for February 2009. A draft operating, maintenance and surveillance manual was completed and is under review. Finally, an energy management team was created to investigate improvements that would limit the mine's energy consumption and greenhouse gas emissions.

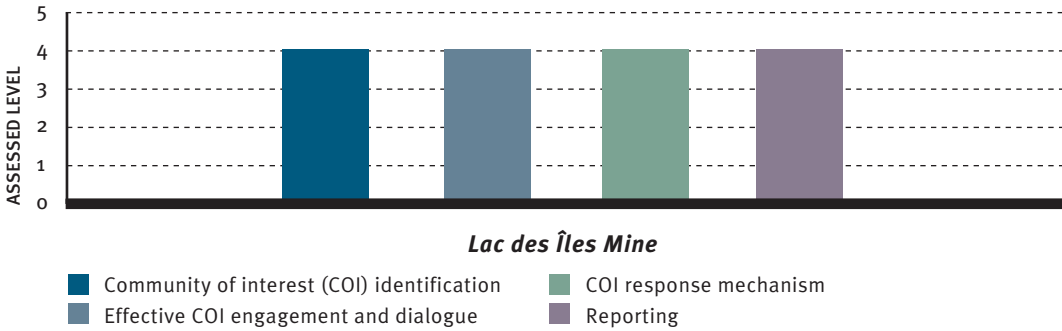
Through the mine's shutdown and into 2009, North American Palladium's commitment to TSM, the environment and neighbouring communities has continued. The company will continue to focus on improving tailings management as well as energy use and GHG emissions, establishing systems and procedures to tackle these shortcomings.

For more information, please visit the North American Palladium Ltd. website at (www.napalladium.com).

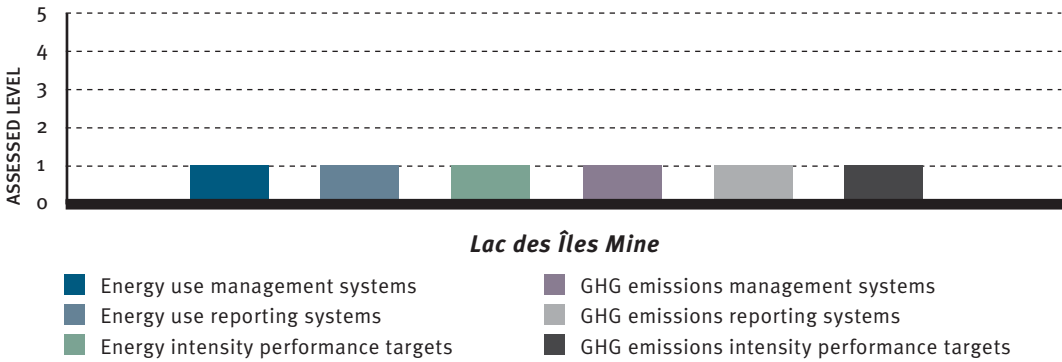
Crisis Management Planning Assessment
North American Palladium Ltd.

	Crisis management preparedness	Review	Training
Corporate	No	No	No
Lac des Îles Mine	Yes	Yes	Yes

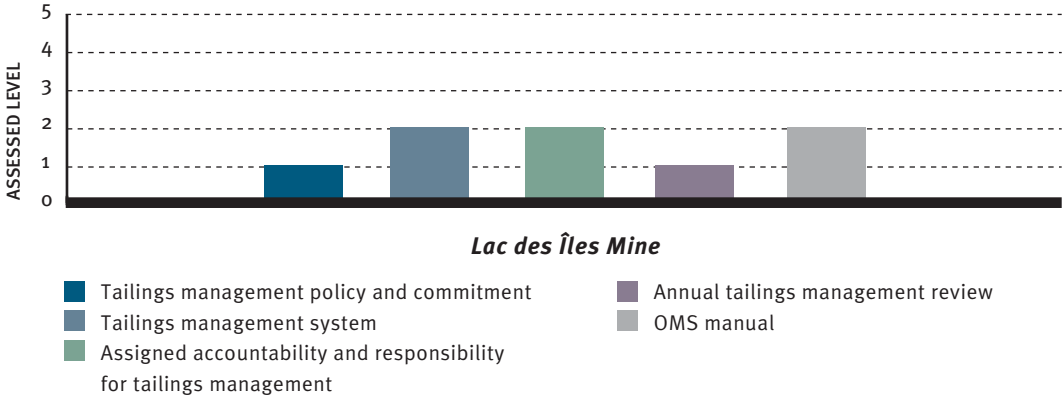
External Outreach Assessment
North American Palladium Ltd.



Energy Use and GHG Emissions Management Assessment
North American Palladium Ltd.



Tailings Management Assessment
North American Palladium Ltd.



Shell Canada Energy

Shell Albian Sands (formerly Albian Sands Energy Inc.) is an oil sands mining operation located 75 kilometres north of Fort McMurray, Alberta. Shell Canada Energy runs the operations on behalf of the owners of the Athabasca Oil Sands Project: Shell Canada Limited (60 percent), Chevron Canada Limited (20 percent) and Marathon Oil Sands LP (20 percent). Shell took over the operations on January 1, 2009.

Shell's focus remains on safety, people, and the sustainable and responsible development of Canada's oil sands.

Economic Sustainability

More than 60 percent of those hired to work at Shell Albian Sands live in the Regional Municipality of Wood Buffalo. Shell spends about \$400 million a year with companies in the municipality, and over \$80 million on business with Aboriginal suppliers. The company's offices in both Fort McKay and downtown Fort McMurray allow for close contact with the community and engagement with stakeholders.

Environmental Sustainability

Shell takes a best practices approach to environmental management. In 2004 Shell became the first oil sands mining operation to achieve ISO 14001:1996 certification. In 2005 the mine was certified under the new, more rigorous standard ISO14001:2004. Shell remains the only oil sands company to have achieved this prestigious accreditation.

Proven management systems enable Shell to meet its environmental goals even as the company grows. Continuing to reduce fresh water use, helping to manage the cumulative effects of oil sands development and applying new technology are all part of the company's pursuit of sustainable mining.

Ongoing and meaningful involvement with multi-stakeholder groups is another important part of Shell's environmental management strategy. The company is an active member of the Cumulative Environmental Management Association, the Wood Buffalo Environmental Association and the Regional Aquatics Monitoring Program.

In 2008 Shell Albian Sands was honoured with the Enviro-Vista award, which recognizes the mine as one of Alberta's environmental leaders.

Social Sustainability

Shell helps manage any infrastructure impacts associated with rapid growth in its region. For example, in Fort McMurray the company has teamed up with Keyano College on several educational and community initiatives.

Shell is also a principal supporter of Leadership Wood Buffalo, a community-focused program that identifies and develops future leaders in the region.

Annual TSM Facility Review

In 2008 Shell maintained its high standards in both crisis management and external outreach, thanks to programs that are reviewed, tested and documented. The company continues to work extensively on engagement and dialogue with communities of interest, including consulting within communities and hosting community members at the facility.

Training programs, from e-web learning to traditional environmental knowledge, continued into 2008. Shell informed communities of its environmental performance in its annual environment report. The company also met with individual communities, giving presentations that allowed for open dialogue.

Tailings management initiatives continued in 2008. The company updated its sustainable development policy with components that address specific items within the TSM tailings management guidelines. In 2009 the facility should have a fully integrated OMS manual, with formal third-party document reviews.

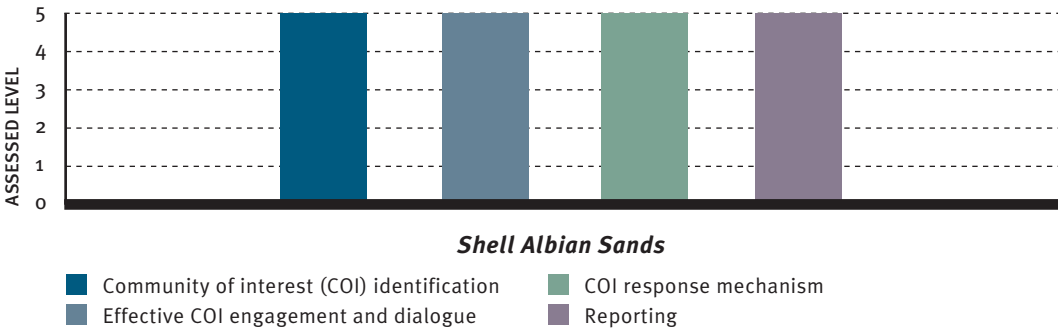
Greenhouse gas management and reporting continue to improve. In 2008 Shell put in place more automatic systems to increase data reporting capabilities and better equip the company to meet regulatory requirements. Energy management programs, which are embedded in the company's environmental management system, will be subject to more formalized third-party verification in the future.

For more information, please visit the Shell website at (www.shell.ca/oilsands).

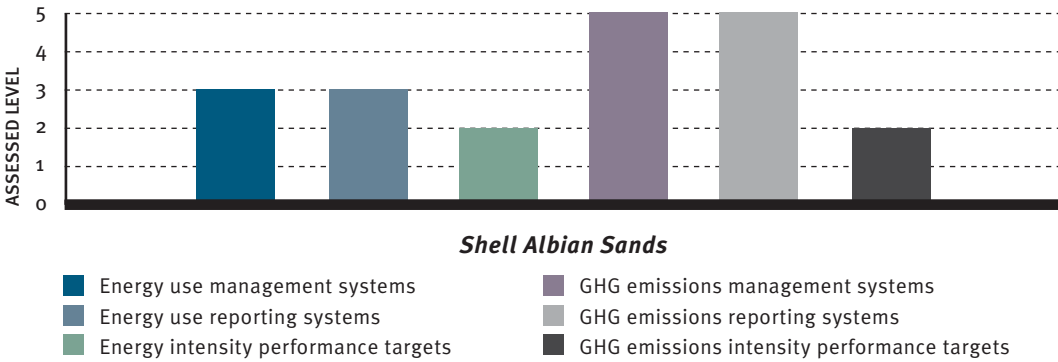
Crisis Management Planning Assessment
Shell Canada Energy

	Crisis management preparedness	Review	Training
Corporate	Yes	Yes	Yes
Shell Albian Sands	Yes	Yes	Yes

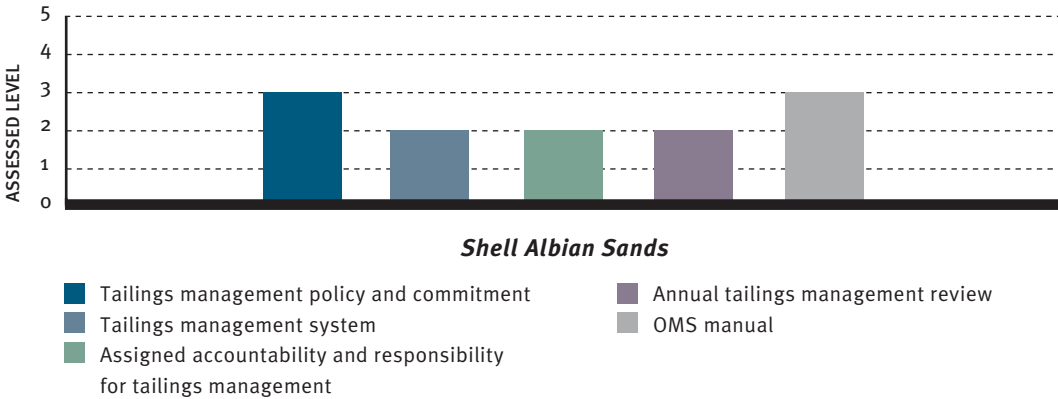
External Outreach Assessment
Shell Canada Energy



Energy Use and GHG Emissions Management Assessment
Shell Canada Energy



Tailings Management Assessment
Shell Canada Energy



Suncor Energy Inc.

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

The following is an overview of the company's 2008 TSM results.

Crisis Management Planning

Crisis management planning is vital to an operation of the scope and size of the Fort McMurray mining and upgrading operations. For this performance element, Suncor met the criteria for both the crisis management preparedness and review indicators in 2008. Personnel changes and scheduling conflicts prevented the company from meeting the full criteria for the training indicator. The missing items have been scheduled for 2009.

Energy Use and GHG Emissions Management

The nature of an oil sands mining and upgrading operation makes efficient energy use critical. Although Suncor fulfilled many of the criteria for Level 4 or 5 in most indicators, the lack of a publicly reported energy target reduced some indicator scores. The company is reviewing its process for setting public targets.

Tailings Management

Oil sands tailings ponds have come under increased public scrutiny in the past few years. That is part of the reason why higher levels of regulatory oversight, through new regulations and guidelines, are now in place.

As with the energy and GHG management element, Suncor met many of the Level 3 or 4 criteria for most tailings management indicators. For example, the company has a long-standing expert panel that reviews tailings planning as well as the performance of tailings and tailings impoundment in accordance with worldwide best practices. However, these areas are not currently reviewed directly against MAC's tailings guidelines. Suncor is reviewing how

MAC's guidelines and recent regulatory changes impact the tailings management criteria.

External Outreach

For Suncor, external outreach has always been a key part of maintaining a social licence to operate. The company regularly reviews its communities of interest and its interaction with them. Communities of interest have an important say in how the company does business, and Suncor's success depends on earning the trust and consent of residents in the communities where it operates.

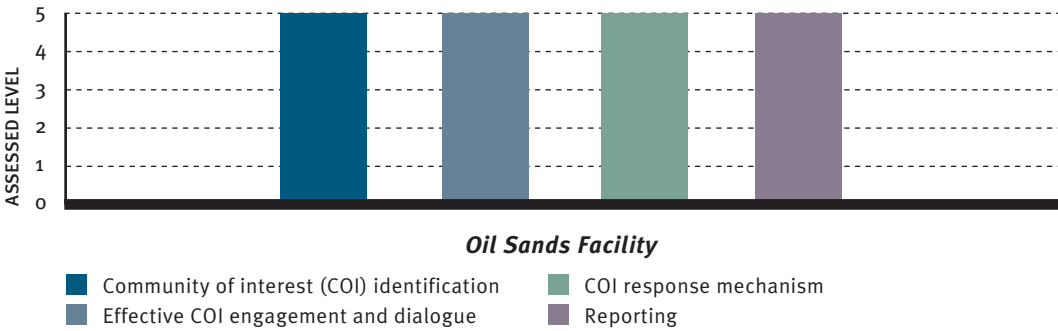
Suncor maintains a stakeholder relations policy that outlines the company's commitment to collaboration, transparency and respect for all views. The policy guides Suncor as it develops long-term relationships with those affected by its business, including employees, community members, shareholders, customers,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

For more information, please visit the Suncor Energy Inc. website at (www.suncor.com).

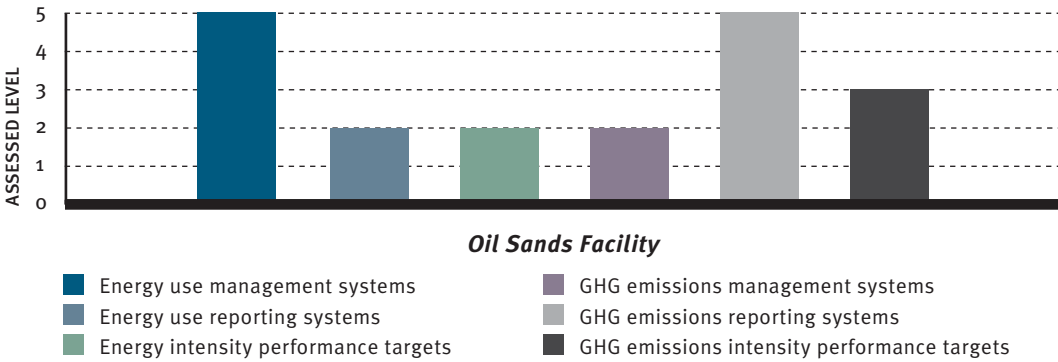
Crisis Management Planning Assessment
Suncor Energy Inc.

	Crisis management preparedness	Review	Training
Oil Sands Facility	Yes	Yes	No

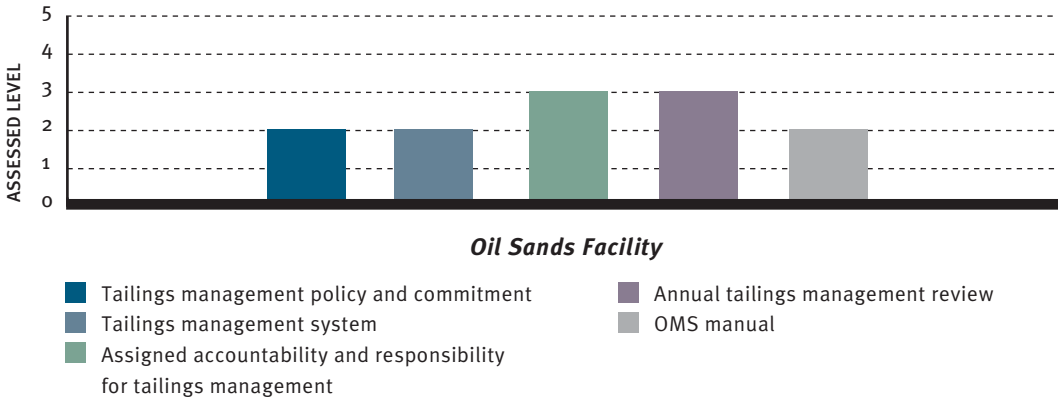
External Outreach Assessment
Suncor Energy Inc.



Energy Use and GHG Emissions Management Assessment
Suncor Energy Inc.



Tailings Management Assessment
Suncor Energy Inc.



Syncrude Canada Ltd.

Syncrude is a leader in Canada's oil sands industry, producing 15 percent of the nation's crude oil requirements. Syncrude operates technologically advanced oil sands mining, extraction and upgrading facilities, as well as utility plants, at its two sites north of Fort McMurray, Alberta. The company completed a major expansion in 2006, which increased production capacity to 350,000 barrels of crude oil per day.

Syncrude's commitment to superior environment, health and safety performance and excellence in community relations has grown stronger because of TSM. In fact, for the 2007 reporting year, Syncrude received the first-ever TSM award for meeting performance standards in all categories.

Syncrude's performance remained consistent for 2008. Here are some highlights:

- OMS manuals were completed for all of Syncrude's tailings facilities, raising TSM tailings management performance to Level 3. Syncrude regularly monitors all on-site dams, holds external technical reviews and has emergency plans for responding to any incidents involving these facilities.
- Syncrude's Energy Conservation Team has raised TSM energy performance to Level 3 or higher over the past two years. The company's GHG reporting has been audited internally and externally, in compliance with Alberta regulations.
- Syncrude continues to identify ways to reduce flaring and improve energy efficiency. Doing this also improves overall GHG performance.
- Syncrude has consistently achieved TSM Level 5 for external outreach. In 2008, for the fourth consecutive time, Syncrude earned the Gold Level Progressive Aboriginal Relations award from the Canadian Council for Aboriginal Business.
- Syncrude works extensively with regional stakeholders to manage the social and environmental effects of oil sands development. This includes being involved in three multi-party organizations and industry

associations that deal with socio-economic impacts and policy issues at the local level.

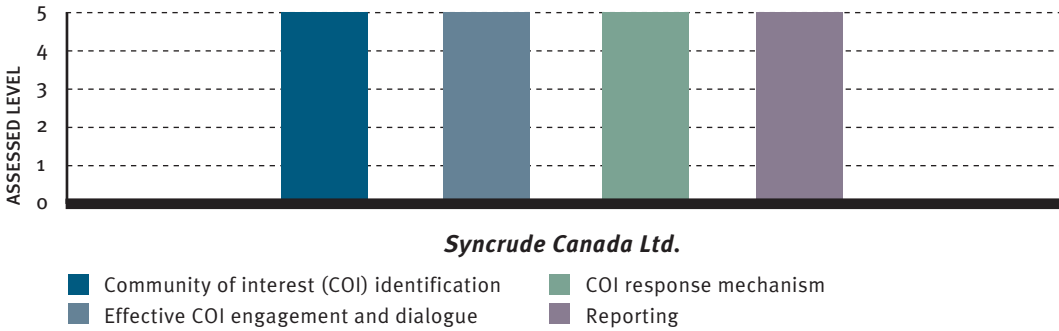
- In the area of crisis management planning, Syncrude scored "yes" for all TSM indicators. The company regularly conducts emergency response exercises, including desktop and site-wide simulations, to ensure that all personnel are properly trained and tested. Pre-plans exist for all medium- and high-level risks.

For more information, please visit the Syncrude Canada Ltd. website at (www.syncrude.com).

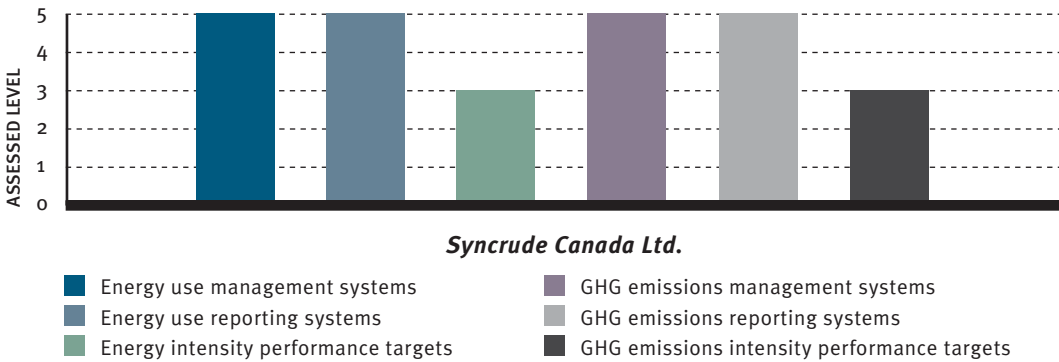
Crisis Management Planning Assessment
Syncrude Canada Ltd.

	Crisis management preparedness	Review	Training
Syncrude Canada Ltd.	Yes	Yes	Yes

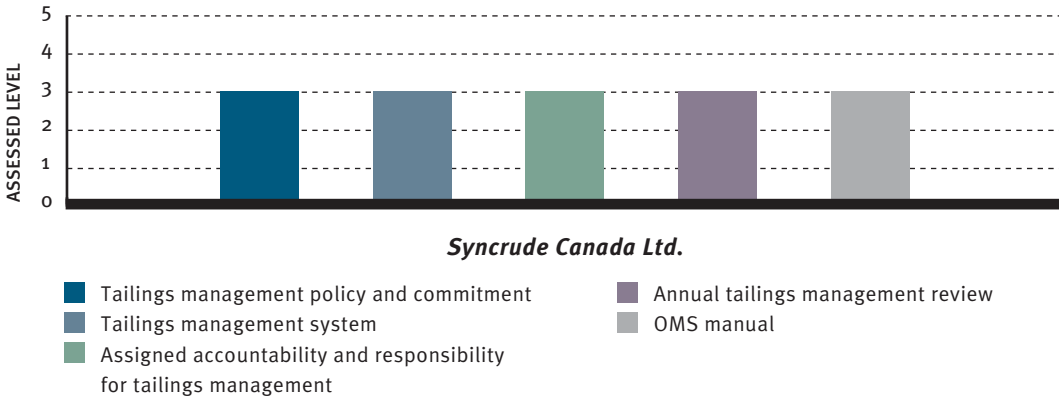
External Outreach Assessment
Syncrude Canada Ltd.



Energy Use and GHG Emissions Management Assessment
Syncrude Canada Ltd.



Tailings Management Assessment
Syncrude Canada Ltd.



Teck Resources Limited

Teck Resources is a diversified resource company committed to responsible mining and mineral development. Through its interests in mining and processing operations in Canada, the United States and South America, Teck's expertise spans the full range of mining activities. The company is managed along commodity lines, focusing on copper, metallurgical coal, zinc, gold and energy. Worldwide, Teck is an important producer of copper, the second-largest exporter of seaborne metallurgical coal and the second-largest producer of zinc concentrate.

Teck defines sustainability performance collectively, in terms of environment; employee safety, health and wellness; community engagement and sustainability; and product stewardship performance. This definition is central to the core values that drive the company's approach to business and responsible mining.

Teck is committed to establishing safe and healthy workplaces and taking all precautions to protect the environment for its communities and workers. In 2008 Teck was recognized for its sustainability performance by being named to the Dow Jones Sustainability Index (DJSI) North America. The DJSI is the first global index to track the performance of the leading sustainability-driven companies worldwide.

Teck subscribes to the objectives and guiding principles of MAC's Towards Sustainable Mining initiative and is committed to implementing the TSM performance assessment, reporting and verification programs at its Canadian sites. Teck uses the initiative to drive continued performance improvement in the TSM areas.

Six of Teck's nine Canadian operations participated in the TSM self-assessment program for the first time this year: Duck Pond (Newfoundland); Cardinal River (BC); and Coal Mountain, Fording River, Greenhills and Line Creek (Alberta).

Elkview (BC) reported self-assessments for its second year, though it was the first year reporting as part of Teck.

Trail and Highland Valley (both in BC) have participated in TSM for a number of years and have received TSM awards for their achievements in crisis management planning and external outreach. These continue to be strong areas of performance across the company's sites.

With the exception of Trail, Teck's weakest performance area is energy use and GHG emissions management. Starting in 2007, Teck began to increase its focus on strategic carbon management, refining its understanding of the company's operating footprint and incorporating carbon issues into decision-making models. In 2008 Teck established an energy and carbon task force and held a company-wide workshop to share best practices.

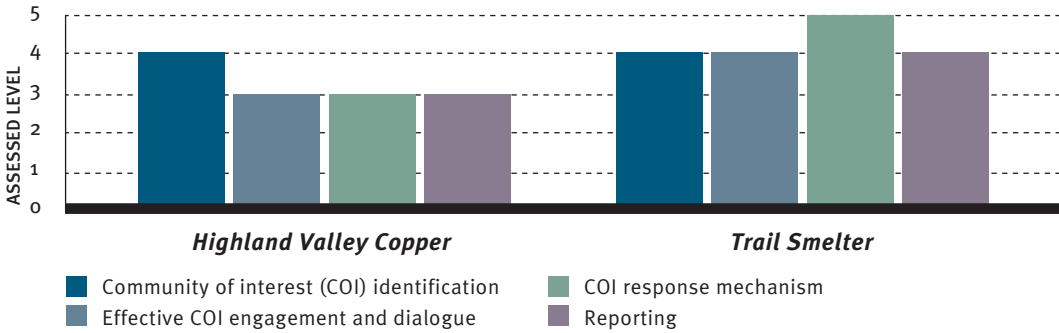
Teck continues to develop its community of practice on energy efficiency and carbon management. As well, the company is refining its energy and carbon strategy while examining site-specific programs to improve performance in the six TSM indicators for energy use and GHG emissions.

For more information, please visit the Teck Resources Limited website at (www.teck.com).

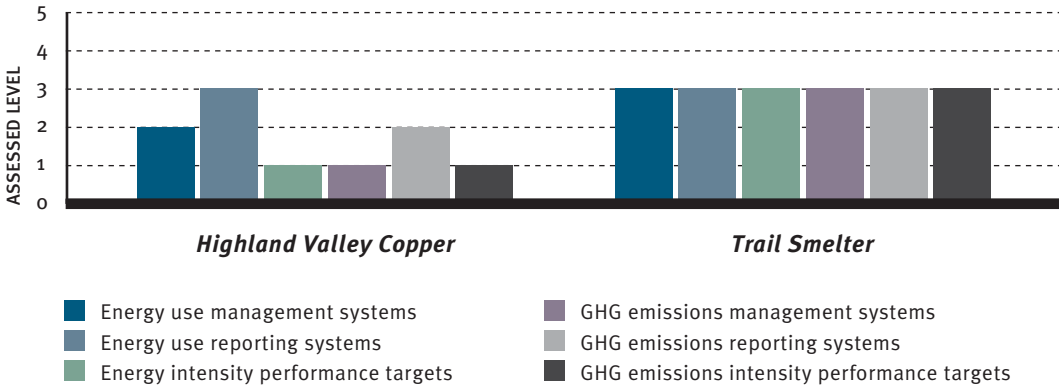
Crisis Management Planning Assessment
Teck Resources Limited

	Crisis management preparedness	Review	Training
Vancouver Corporate	Yes	Yes	Yes
Highland Valley Copper	No	Yes	Yes
Trail Smelter	Yes	Yes	Yes

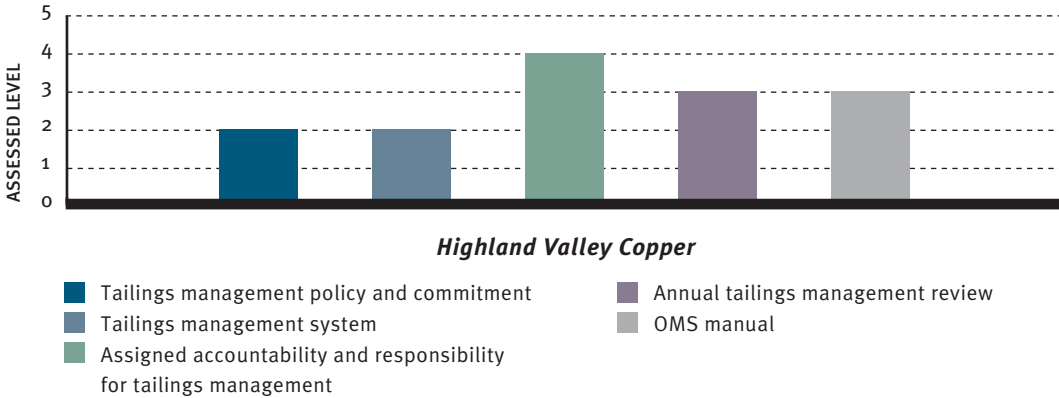
External Outreach Assessment
Teck Resources Limited



Energy Use and GHG Emissions Management Assessment
Teck Resources Limited



Tailings Management Assessment
Teck Resources Limited



Vale Inco

Vale Inco is a leading producer of nickel, copper, cobalt and precious metals. Based in Toronto, the company is a wholly owned subsidiary of Vale S.A. (Vale), the world's second-largest mining company by market capitalization. Vale Inco has approximately 12,000 employees worldwide and had net sales last year of U.S.\$5.97 billion.

Vale Inco is committed to pursuing sustainable growth by operating with respect for the natural environment and being an ethically and socially responsible company. Vale Inco is proud of its 2008 TSM score improvements. Next year the company anticipates even better performance in the area of energy management systems, thanks to the appointment of a new corporate energy leader and improvements in the documentation required to demonstrate sound tailings management.

Successful Aboriginal Engagement at Voisey's Bay

The Voisey's Bay mine and mill site has become a model for the involvement and rapid advancement of Aboriginal groups in the mining industry. The Labrador Inuit and Innu supply the site with advice on environmental protection and compliance. Commitments to provide preferential employment and business opportunities for Aboriginal people and companies have had positive results, with Aboriginal people making up about 54 percent of the operation's workforce in 2008.

Advancing Aboriginal Engagement in Sudbury

In 2005 the Totten mine project in Sudbury brought together Vale Inco and the Sagamok Anishnawbek First Nation. Today Vale Inco acknowledges the advantages of a social licence to operate within First Nations traditional territory. In four years, both parties have gained an understanding and appreciation of the other's strengths and unique challenges. From learning the history of First Nations people in Canada from those who lived it, to being acquired by a global mining company, shared experiences were a key factor in the development of a sustainable impact and benefits agreement between Vale Inco and Sagamok Anishnawbek.

Growing Corn on Old Tailings

The CANMET Mining and Mineral Sciences Laboratories of Natural Resources Canada have established a consortium initiative called Green Mines-Green Energy, which includes significant participation from Vale Inco. The initiative aims to rehabilitate mined land using organic residuals (paper mill biosolids, compost, etc.) so that it can support the growth of energy crops such as corn, canola and switchgrass. Vale Inco has done a cost-shared laboratory study to examine the effects of organic covers on tailings porewater quality, effluent treatability and toxicity. The company has established two half-hectare field tests on the Copper Cliff tailings, which will be monitored over three years. Results to date have been excellent, with corn and canola reaching full maturity during the first year. This project is part of Vale Inco's overall tailings management.

Best-in-Class Crisis Management Capability

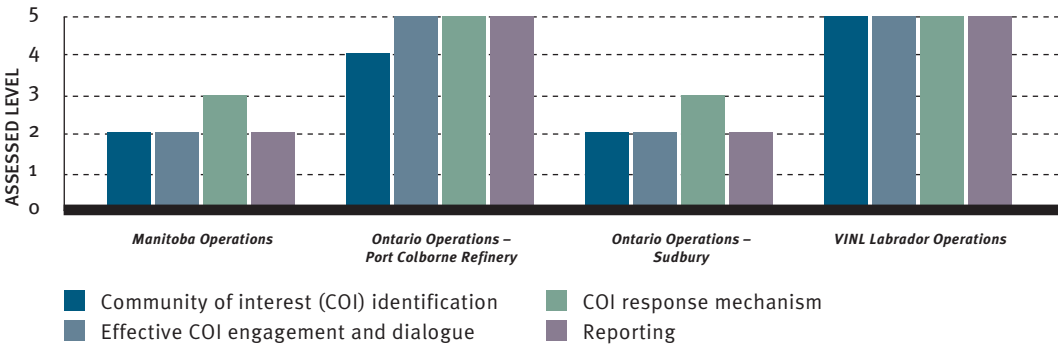
Vale Inco has always had a strong emergency response program for on-scene responders. However, in 2008 a web-based information management tool was introduced across the global nickel business, allowing instant information sharing regardless of geographic location. In 2008 Vale Inco management received specialized training in how to lead their operations through a crisis.

For more information, please visit the Vale Inco website at (www.inco.com).

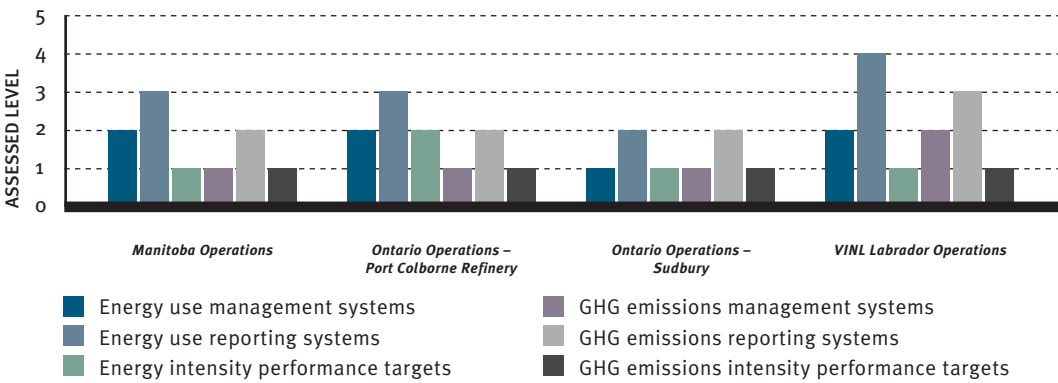
Crisis Management Planning Assessment
Vale Inco

	Crisis management preparedness	Review	Training
Corporate Office	Yes	Yes	Yes
Manitoba Operations	Yes	Yes	Yes
Ontario Operations – Port Colborne Refinery	Yes	Yes	Yes
Ontario Operations – Sudbury	No	No	Yes
VINL Labrador Operations	Yes	Yes	Yes

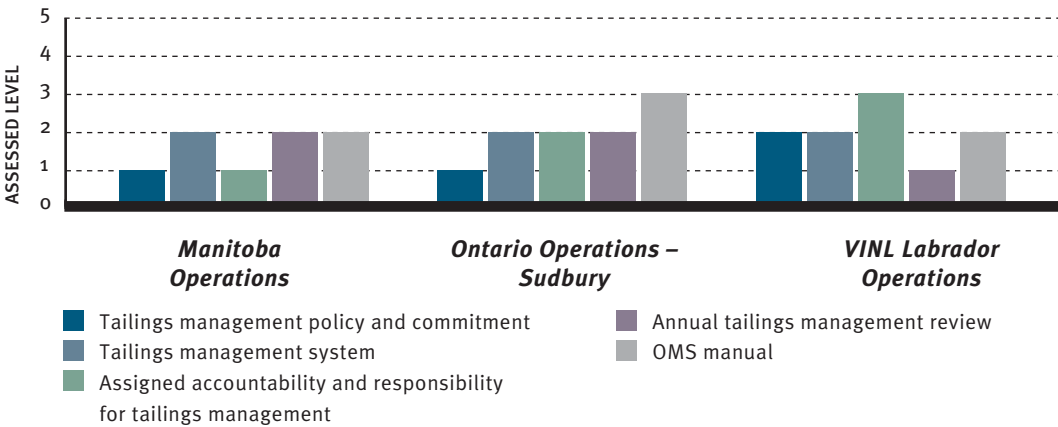
External Outreach Assessment
Vale Inco



Energy Use and GHG Emissions Management Assessment
Vale Inco



Tailings Management Assessment
Vale Inco



Xstrata Copper Canada

Xstrata Copper Canada is a member of the Xstrata Copper business unit headquartered in Brisbane, Australia, the fourth-largest copper producer in the world. Xstrata Copper Canada is involved at each stage of the sustainable development cycle: exploration, mining, milling, smelting, re-fining, recycling, rehabilitation and maintaining closed sites.

Xstrata Copper Canada employs 2,885 people at the Kidd mine and metallurgical operations in Timmins, Ontario; the Horne smelter in Rouyn-Noranda, Quebec; the CCR refinery in East Montreal; the company's recycling operation; 16 closed mine sites; and the division office in Toronto. Operations produce mainly copper and precious metals, which are marketed primarily in North America, Europe and Asia. In addition, sulphuric acid is produced at the Kidd metallurgical and Horne sites, with sulphur fixation rates of 97 percent and 95 percent respectively.

Xstrata Copper Canada is a pioneer and world leader in the recycling of metallic copper scrap and electronic waste such as circuit boards, chips and cell phones (125,000 tonnes in 2008). From this material, the Horne smelter extracts metals for smelting and refining. The smelter, located in a residential neighbourhood, has commissioned a first secondary hood on one anode furnace, at a cost of \$5 million, to capture and treat fugitive emissions. This has improved air quality in the area.

At the Kidd mine, Xstrata Copper made progress on a project to turn off more than 100 underground ventilation fans when workers are above ground, thereby reducing overall energy consumed and carbon dioxide emitted. This progress is reflected in the Kidd mine's TSM results for energy use and GHG emissions. At the Kidd metallurgical site, a new baghouse has been built to capture gases from furnace launders, and the Asarco shaft furnace has been shut down. These two actions will greatly lower site emissions in 2009. Finally, an energy audit at the CCR refinery has helped identify energy waste and evaluate potential energy reductions.

Remediation of the former Murdochville smelter and mine site in Quebec is 90 percent complete. All residential properties in Murdochville have been rehabilitated, most of the infrastructure has been demolished, and an energy-efficient

water treatment plant has been constructed. The company has also rehabilitated residential land around the port of Gasp , where concentrate was handled in the past.

Xstrata Copper has also conducted perception studies in Timmins, Rouyn-Noranda and East Montreal to better understand community needs and concerns and to maximize the impact of the company's community partnership program.

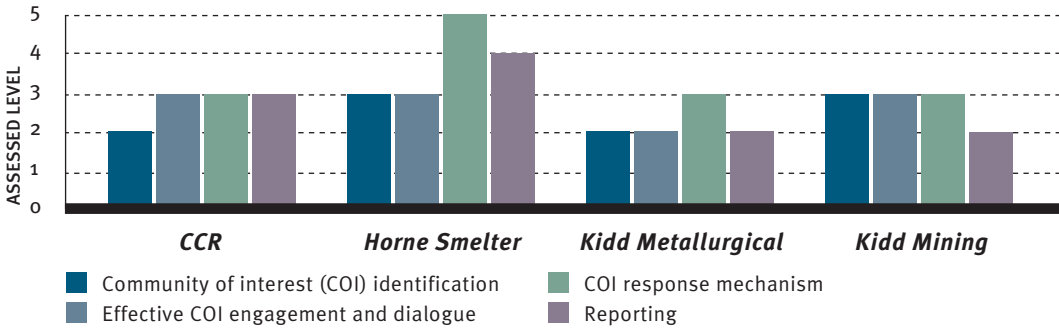
Through 2008 and 2009, Xstrata Copper Canada has emphasized the efficient implementation of Xstrata's 17 sustainable development standards, which are consistent with TSM requirements. The company is addressing its 2008 TSM results, which reflect the work still needed to close a number of management system loops, and anticipates better results in its self-audit at the end of 2009.

For more information, please visit the Xstrata Copper Canada website at (www.xstrata.com).

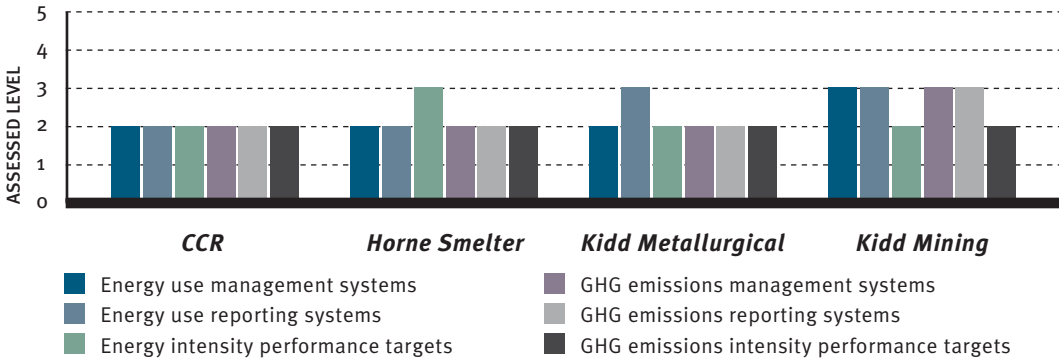
Crisis Management Planning Assessment
Xstrata Copper Canada

	Crisis management preparedness	Review	Training
Corporate	Yes	Yes	Yes
CCR	No	No	No
Horne Smelter	Yes	No	No
Kidd Metallurgical	No	No	No
Kidd Mining	No	No	No

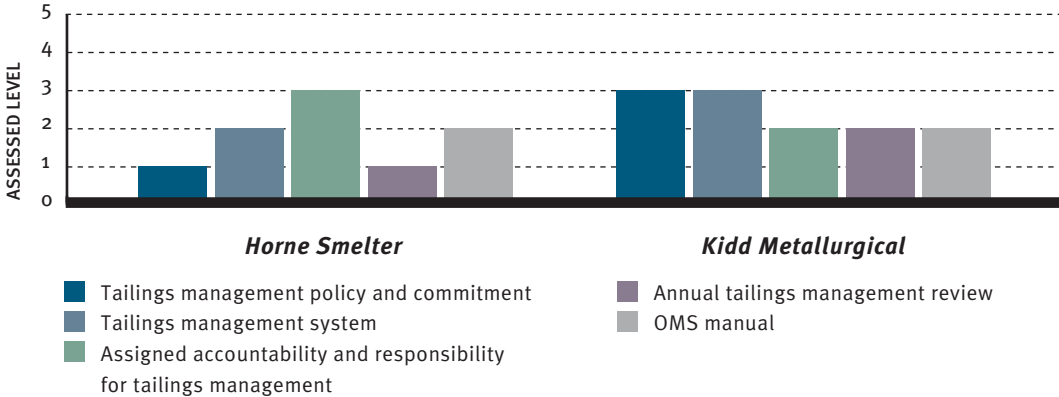
External Outreach Assessment
Xstrata Copper Canada



Energy Use and GHG Emissions Management Assessment
Xstrata Copper Canada



Tailings Management Assessment
Xstrata Copper Canada



Xstrata Nickel

Xstrata Nickel is the world’s fifth-largest nickel producer, with annual managed production of more than 107,000 tonnes of refined nickel. It is also one of the world’s largest recyclers and processors of nickel and cobalt-bearing materials. A commodity business unit of Xstrata plc, a major global mining group, Xstrata Nickel is headquartered in Toronto.

Xstrata Nickel’s mining operations and processing facilities are located in Ontario and Quebec, as well as in the Dominican Republic, western Australia and Norway. Xstrata Nickel also has a promising portfolio of growth projects, including Koniambo in New Caledonia, Kabanga in Tanzania, Araguaia in Brazil and Nickel Rim South in Canada (Ontario).

Sustainability lies at the foundation of Xstrata Nickel’s business strategy and activities. Sustainability requires meaningful engagement with communities of interest. It also requires maintaining the highest regard for environmental stewardship, social responsibility, corporate governance and transparent reporting, while delivering superior shareholder returns. These values form the basis of Xstrata Nickel’s support for the TSM initiative.

The 2008 results for external outreach show areas where Xstrata Nickel can improve its collective methodology for identifying, engaging and responding to the concerns of communities of interest. By the end of 2009, Xstrata Nickel will put in place a corporate social involvement framework, with performance indicators to support both the framework and, ultimately, overall engagement with communities of interest.

Meanwhile, the Sudbury Soils Study Public Advisory Committee, the Falconbridge Citizens Committee and the Montcalm Environmental Liaison Committee all continue to engage local community members.

Xstrata Nickel’s results for energy use and GHG emissions management indicate that all sites have energy management systems and reporting mechanisms in place, and have GHG management and reporting systems under development.

In 2009 each site will adopt an energy management plan based on achieving the company’s energy targets. As well, the company has begun a climate change project to better understand its GHG emissions profile, risks and opportunities, and the impacts of the rapidly evolving global regulatory environment.

Xstrata Nickel’s goal is to integrate the TSM protocols, frameworks and verification elements with Xstrata’s own sustainability framework and assurance program. In 2008 all Xstrata Nickel operations participated in the first assurance audit against the 17 Xstrata sustainable development standards. These standards itemize intent and performance against core requirements such as leadership, biodiversity conservation, communication and engagement, risk and incident management, and community.

By continuing to improve the company’s own sustainable development framework and assurance program, Xstrata Nickel anticipates that its TSM performance and verification will also improve. Generating awareness of the TSM framework can only complement the Xstrata sustainability framework and assurance program.

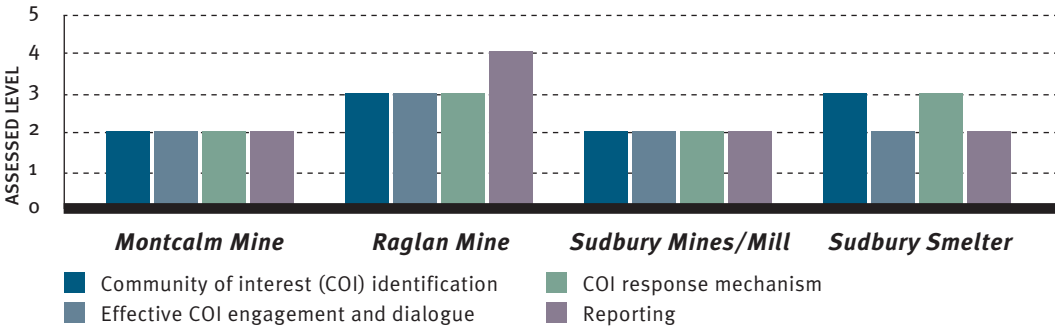
Xstrata Nickel met with the TSM Community of Interest Advisory Panel in 2008 to review the results of its third-party verification. The constructive discussion and feedback that occurred helped Xstrata Nickel identify areas where it could improve its performance and processes. The review also enabled good dialogue on how TSM elements can align with the company’s own sustainability planning.

For more information, please visit the Xstrata Nickel website at (www.xstrata.com).

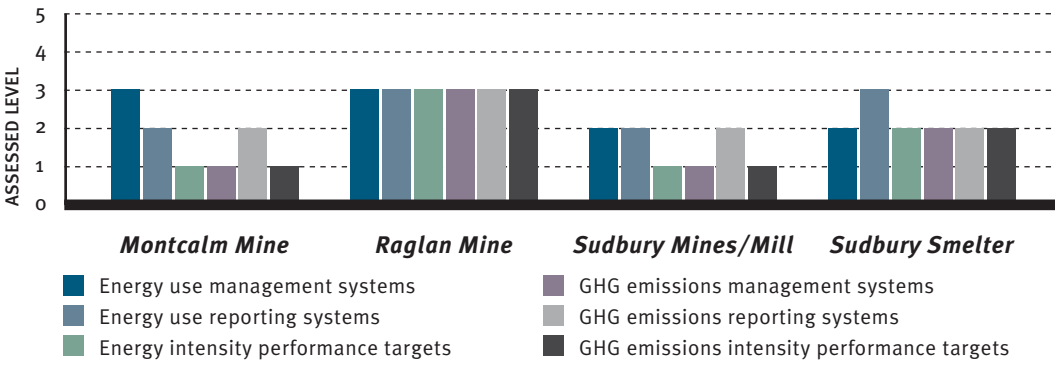
Crisis Management Planning Assessment
Xstrata Nickel

	Crisis management preparedness	Review	Training
Corporate	Yes	Yes	No
Montcalm Mine	Yes	Yes	No
Raglan Mine	Yes	Yes	Yes
Sudbury Mines/Mill	Yes	Yes	Yes
Sudbury Smelter	Yes	Yes	Yes

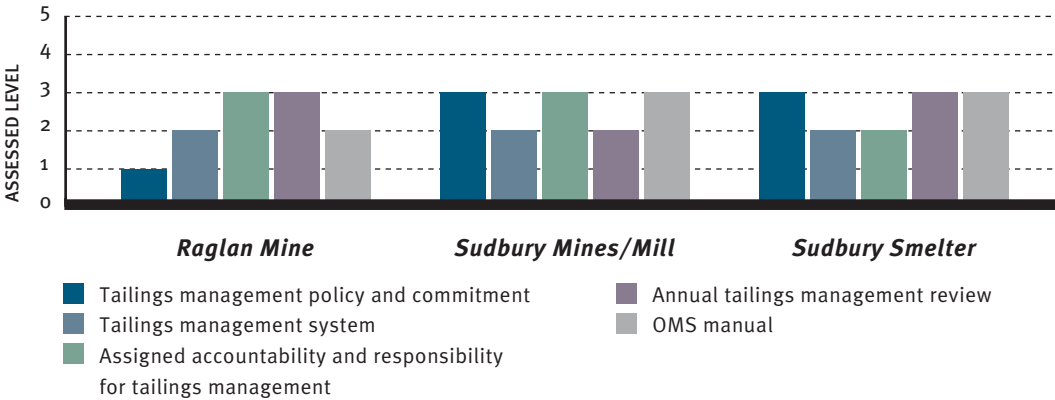
External Outreach Assessment
Xstrata Nickel



Energy Use and GHG Emissions Management Assessment
Xstrata Nickel



Tailings Management Assessment
Xstrata Nickel



Xstrata Zinc Canada

Xstrata Zinc Canada manages the North American operations of Xstrata plc's zinc business unit and includes mining and metallurgical operations in eastern Canada. The following facilities have implemented TSM:

- Brunswick mine, Bathurst, New Brunswick
- Brunswick smelter, Bathurst, New Brunswick
- Noranda Income Fund, CEZ refinery (25 percent interest), Valleyfield, Quebec

Xstrata plc has a stringent sustainable development framework that all its facilities must implement. The framework, which consists of 17 functional areas, is considered world-class. All facilities have their implementation of the framework externally verified. (For more detail, see www.xstrata.com/sustainability.)

Several of Xstrata's framework standards apply directly to TSM indicators. For example, communication and engagement (Standard 4) and social and community engagement (Standard 12) relate directly to TSM's external outreach performance element. Xstrata Zinc has demonstrated optimal performance in these areas, as shown by third-party auditing. As the Brunswick mine approaches the end of its mine life, this performance area is of increasing importance. The company is applying significant resources to minimize, as much as possible, the impact on employees and the local community.

Tailings dam management is a vital environmental concern, and a tailings dam failure would be considered a catastrophic hazard under the Xstrata sustainable development framework (Standard 6). The Brunswick mine has a very strong management system in place because of the risk inherent in this type of facility. The management system, as well as the site's OMS manual, is subject to regular third-party audits and internal audits. No further work on the management system is anticipated at the Brunswick mine, where the current priority is effective closure planning.

Greenhouse gas and energy conservation remains an important metric at all Xstrata Zinc facilities, where the focus is on energy reduction.

At Xstrata, the top priority is to prevent crises from occurring. As a result, crisis communications planning has taken a secondary role. This is an area that the company will enhance in the coming year.

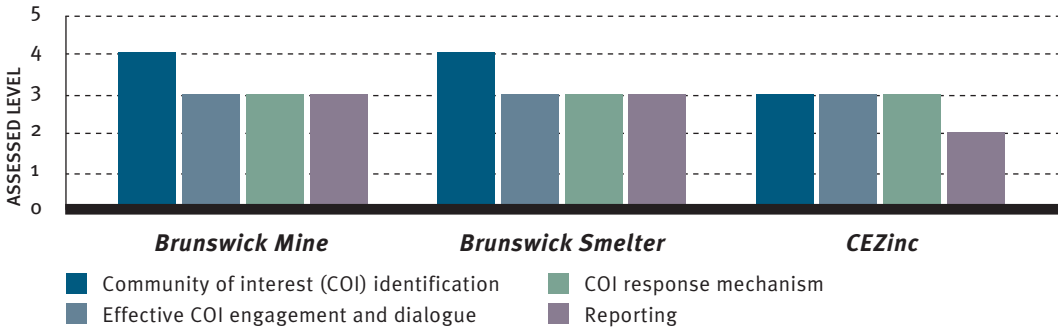
The Perseverance mine in Matagami, Quebec, came on line in late 2008. The implementation of TSM at this facility recently began and will be reported on in the future.

For more information, please visit the Xstrata Zinc Canada website at (www.xstrata.com).

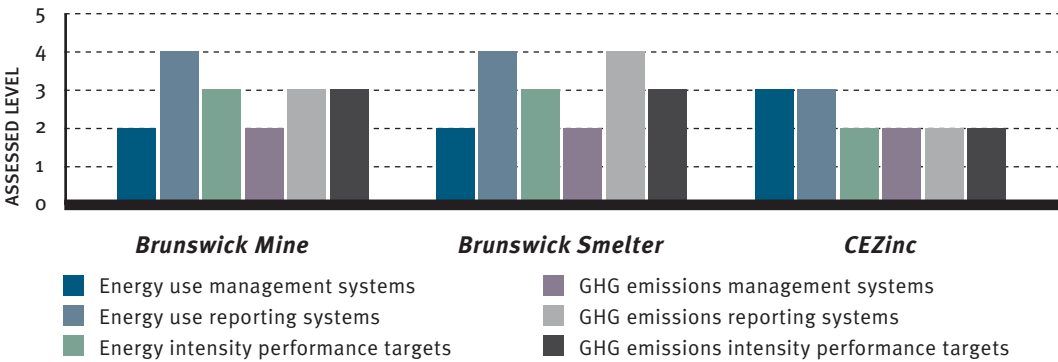
Crisis Management Planning Assessment
Xstrata Zinc Canada

	Crisis management preparedness	Review	Training
Corporate	Yes	No	No
Brunswick Mine	Yes	Yes	No
Brunswick Smelter	Yes	Yes	Yes
CEZinc	Yes	Yes	No

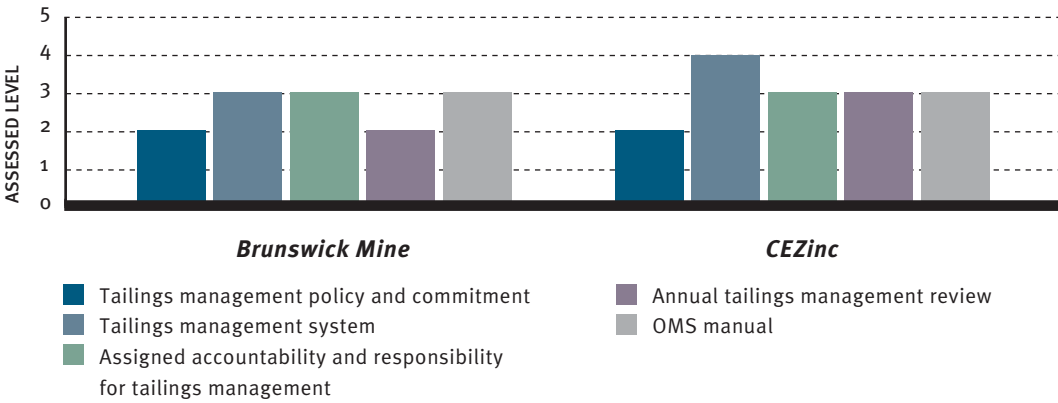
External Outreach Assessment
Xstrata Zinc Canada



Energy Use and GHG Emissions Management Assessment
Xstrata Zinc Canada



Tailings Management Assessment
Xstrata Zinc Canada

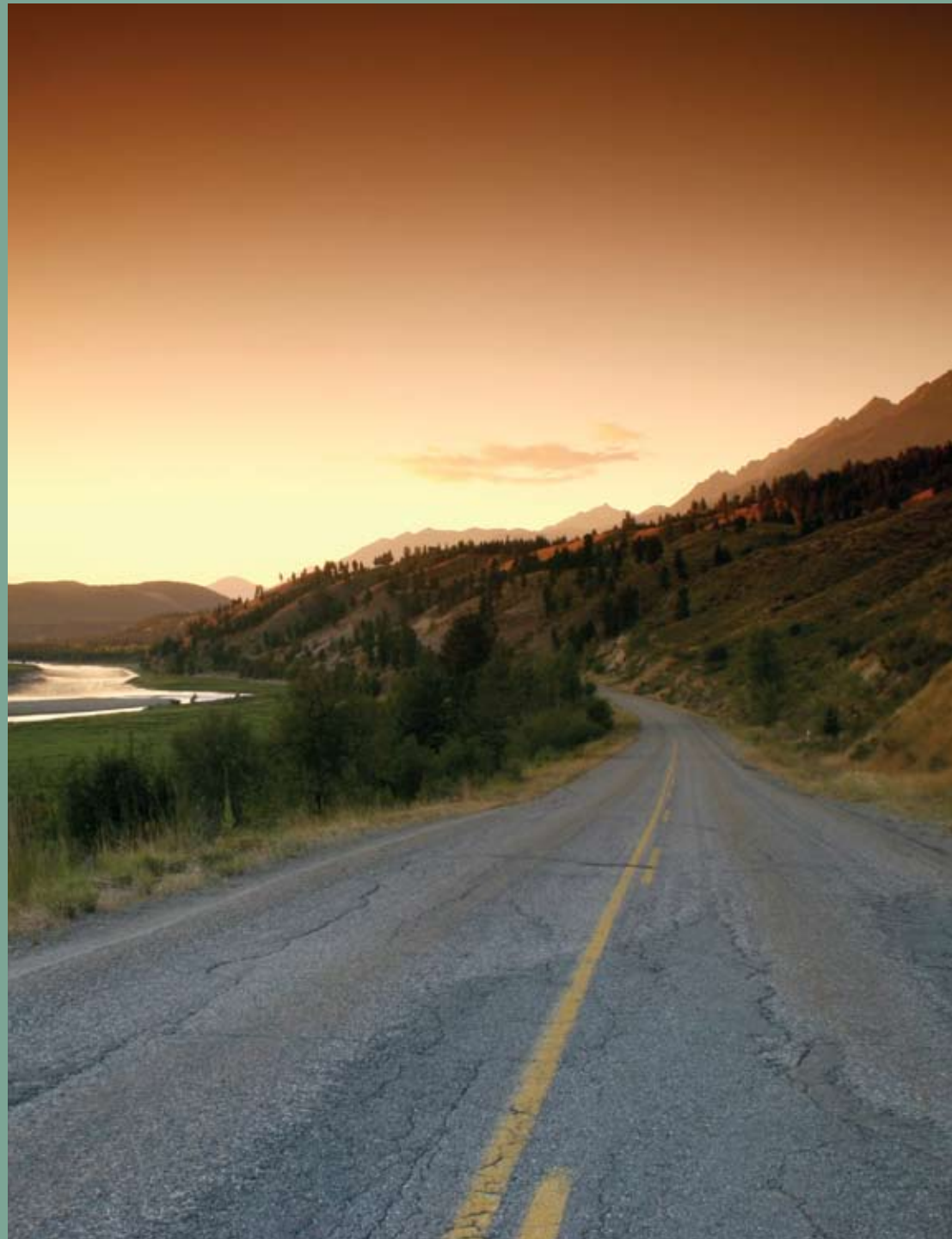


Notes

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Notes

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THE MINING ASSOCIATION OF CANADA is the national organization of the Canadian mining industry. It comprises companies engaged in mineral exploration, mining, smelting, refining and semi-fabrication. Member companies account for the vast majority of Canada's output of minerals and metals.

The Association's functions are to promote the interests of the industry nationally and internationally, to work with governments on policies affecting minerals, to inform the public and to promote cooperation between member firms to solve common problems. MAC works closely with provincial and territorial mining associations, and other industry groups across Canada and internationally.





towards sustainable mining



The Mining Association
of Canada

L'Association minière
du Canada

Suite 1105, 350 Sparks Street
Ottawa, Ontario, K1R 7S8

Tel: 613 233-9391 | Fax: 613 233-8897

www.mining.ca

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