Towards Sustainable Mining

November 15, 2012

l’Association québécoise de vérification environnementale
Overview

• Why TSM in Canada
• How it was developed
• Architecture and Governance
• COI panel
• Performance indicators and how they work
• External Verification
• Reporting
About MAC

• The national organization of the Canadian mining industry
• Mining, smelting and refining of base and precious metals
• Mining of iron ore, diamonds, uranium, oil sands, coal and industrial minerals
• Many associate members
• www.mining.ca
MAC Members

- Agnico-Eagle Mines Ltd.
- Anglo American Metallurgical Coal Canada
- ArcelorMittal Mines Canada
- Baffinland Iron Mines Corporation
- Barrick Gold Corporation
- BHP Billiton Canada Inc.
- BHP Billiton Base Metals
- Cameco Corporation
- Canadian Zinc Corporation
- De Beers Canada Inc.
- HudBay Minerals Inc.
- IAMGOLD Corporation
- Imperial Metals Corporation
- INMET Mining Corporation
- Iron Ore Company of Canada
- Kinross Gold Corporation
- New Gold Inc.
- Newmont Canada Corporation
- Newmont Hope Bay Mining Ltd.
- North American Tungsten Corporation Ltd.
- Nyrstar Canada (Holdings) Ltd.
- Royal Canadian Mint
- Sabina Gold and Silver Corporation
- Shell Canada Energy Inc.
- Shore Gold Inc.
- Suncor Energy Inc.
- Syncrude Canada Ltd.
- Teck Resources Ltd.
- Taseko Mines Ltd.
- Vale
- Wabush Mines
- Xstrata Copper Canada
- Xstrata Nickel
- Xstrata Zinc Canada
Towards Sustainable Mining: Background

UN World Commission on Environment and Development report focuses attention on the environmental and social impacts of industrial activity.

MAC focused on gathering stakeholder input, finalizing the guiding principles and developing the key performance elements to respond to priority areas identified during the initial dialogue.

Early 1990’s

1987

High-profile tailings dam failures at international mine sites owned and operated by Canadian companies bring media attention to the Canadian mining sector.

Canadian mining sector launches Whitehorse Mining Initiative (WMI).

1998-2002

UN Conference on Environment and Development in Rio de Janeiro increases public awareness of environmental damage. Citizen groups and NGOs begin to pressure governments and industry.
THE UGLY CANADIAN

THE PHILIPPINES: MARCOPPER

KUMPTOR: KYRKYZSTAN

GUYANA: OMAI

LOS FRAILES: SPAIN
MAC focused on gathering stakeholder input, finalizing the guiding principles and developing the key performance elements to respond to priority areas identified during the initial dialogue.

Protocols were tested, and in 2004 the TSM initiative was launched at the AGM of the Canadian Institute of Mining, Metallurgy and Petroleum in Edmonton.

TSM continues to evolve and grow to meet the needs of society.
**Business case for TSM**

There are many reasons why addressing social, environmental and community issues is good for mining companies:

- Performance improvement,
- Risk management,
- Access to capital,
- Social license,
- Recruitment and retention, and
- Innovation and learning
What is TSM?

- Off the shelf management system for key mining risks
- Easily integrated into EMS
- Backed with guidance manuals
- Transparent
- Credible, recognized as “best in class”
- Growing recognition
- Community of Interest engagement built into the program
- Mandatory for MAC members
- Facility level reporting
TSM Governance

MAC Board of Directors

TSM Governance Team

TSM Initiative Leaders

Tailings Working Group

Energy Task Force

Public Affairs Committee

Biodiversity Task Force

Other MAC Committees/Taskforces/Working Groups

Community of Interest Advisory Panel
**COI Advisory Panel**

- Meets twice per year
- Work of Panel publicly available on the MAC website
- Annual COI Panel Statement published in TSM Progress Report

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<th>Advisory Panel Composition</th>
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<tr>
<td>Aboriginal peoples</td>
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<tr>
<td>Environmental NGO</td>
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<tr>
<td>Economic/community development</td>
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<tr>
<td>Social NGO including faith based groups</td>
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<tr>
<td>Finance/investment</td>
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<tr>
<td>International development</td>
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<tr>
<td>Labour/workplace</td>
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<tr>
<td>Media/communications</td>
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<td>MAC Board of Directors</td>
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<td>Junior Mining Company Representative</td>
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**Guiding Principles**

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.

**MAC members are committed to:**

- Transparency
- Safety and Health
- Accountability
- Sustainability
- Innovation
- Community Engagement/Development
- Excellence
**TSM Performance Indicators**

In addressing the TSM Guiding Principles, MAC developed performance indicators to:

- Respond to critical performance areas
- Demonstrate performance
- Facilitate continuous improvement toward recognized best practices
- Build credibility and trust with communities of interest
# TSM Performance Indicators

<table>
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<tr>
<th>Communities &amp; People</th>
<th>Environmental Footprint</th>
<th>Energy Efficiency</th>
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<tr>
<td><strong>Aboriginal and Community Outreach</strong></td>
<td>Crisis Management Planning</td>
<td>Safety and Health</td>
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<td><strong>Community of interest (COI) identification</strong></td>
<td>Crisis management preparedness</td>
<td>Policy, commitment and accountability</td>
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<tr>
<td><strong>Effective COI engagement and dialogue</strong></td>
<td>Review</td>
<td>Planning, implementation and operation</td>
</tr>
<tr>
<td><strong>COI response mechanism</strong></td>
<td>Training</td>
<td>Training, behavior and culture</td>
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<td><strong>Reporting</strong></td>
<td>Monitoring and reporting</td>
<td>Annual tailings management review</td>
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<tr>
<td></td>
<td>Performance</td>
<td>Operation, maintenance and surveillance (OMS) manual</td>
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The Mining Association of Canada
L'Association minière du Canada
mining.ca
Each indicator is designed to focus on a different management component of the performance element. For each indicator, companies receive one of five scores based on which criteria they meet. The scores are described below:

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

- Three indicators:
  - Crisis management preparedness
  - Review
  - Training

- Assessment of both corporate & facility levels

- Uses a different rating scale - Must assess each criterion as Yes/No (Met/Not Met)

- Must meet all criteria in order to achieve a Yes

- Aligned with MAC Guidelines for Corporate Crisis Management Planning (updated every 2 years)

- Goal is to achieve “Yes” for all three indicators
  - Crisis management plan is in place;
  - Crisis management plan is regularly reviewed and updated; and
  - Crisis management training is conducted on an annual basis.
Energy and GHG Emissions Management

- Three indicators:
  - Energy use/GHG management systems
  - Energy use/GHG reporting systems
  - Energy use/GHG performance target

- Aligned with MAC Energy Use and GHG Emissions Management Guidance Document

- Goal is to achieve a rating of A or higher for all indicators
  - Systems are in place to manage energy use and GHG emissions;
  - Energy use and GHG emissions tracking and reporting systems are in place for internal use and for public reporting; and
  - Energy and GHG emissions performance targets have been established and met.
Aboriginal and Community Outreach

• Focuses on engagement with communities of interest (COI)
• In 2009, amended this protocol to more explicitly address outreach and engagement with Aboriginal communities along with other COI

• Four indicators:
  – COI identification
  – Effective COI engagement and dialogue
  – COI response mechanism
  – Reporting

• Goal is to achieve a rating of A or higher for all indicators
  – Systems are in place to identify COI at the local/site level;
  – Systems are in place to communicate with COI;
  – Complaint and response systems are in place; and
  – Reporting on COI engagement is open and transparent.
Tailings Management

- Five indicators:
  - Policy and commitment
  - Tailings management system
  - Assigned accountability and responsibility for tailings management
  - Annual tailings management review
  - Operation, Maintenance and Surveillance (OMS) Manual

- Three guidance manuals:
  - A Guide to the Management of Tailings Facilities
  - A Guide to Audit and Assessment of Tailings Facility Management
  - Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities

- Goal is to achieve a rating of A or higher for all indicators
  - A tailings management policy and system developed and/or reviewed in consultation with COI;
  - An executive officer (CEO or COO) who has overall accountability to ensure that tailings are managed responsibly;
  - Developed and implemented a tailings OMS manual.
Safety and Health

• Informed by the OHSAS 18001:2007 Standard for Occupational Health and Safety Management Systems

• Five performance indicators
  – Policy, commitment and accountability
  – Planning, implementation and operation
  – Training, behaviour and culture
  – Monitoring and reporting
  – Performance

• Refers to MAC’s Framework on Safety and Health

• Goal is to achieve a level A for each indicator
  – Processes have been established to effectively plan for and manage safety and health to prevent the occurrence of all incidents, including a training program;
  – Safety and health performance is regularly monitored and reported both internally and externally; and
  – Continual improvement targets at each facility to move toward zero harm.
Biodiversity Conservation

- Three indicators:
  - Corporate biodiversity conservation policy, accountability and communications
  - Facility-level biodiversity conservation planning and implementation
  - Biodiversity conservation reporting

- References MAC’s Mining and Biodiversity Conservation Framework

- Goal is to get to level A for each indicator
  - Effective plans and management systems are implemented at the facility-level to manage significant biodiversity aspects; and
  - Biodiversity conservation reporting systems are in place to inform decision-making and to communicate performance publicly.
**TSM Verification System**

**Self-assessment**
- annual

**External verification**
- every three years

**CEO letter of assurance**
- posted on MAC website in year of external verification

**COI Panel Review**
- 2-3 companies each year
External Verification

- In the year of external verification, the TSM Initiative Leader will engage a qualified Verification Service Provider (VSP) to undertake the verification.
- To be qualified to undertake the verification, the VSP must:
  - Attend a TSM Verification Workshop or complete the entire TSM online training course,
  - Demonstrate auditing experience as well as expertise related to the subject matter covered by the protocols, and
  - Be independent.
- VSP Terms of Reference establish these minimum requirements and outline the verification process.
External Verification: Scope of Work

• Standard verification methodology
• Includes three phases:

1. Planning
   • Pre-verification communication with the client to ensure all required materials at the appropriate locations are available beforehand.
   • Discussion with the client regarding the sample size for the verification and location for the verification activities.

2. Conduct
   • Verify that the performance level reported by the client is consistent with the VSP’s determination, based on standard auditing tools, including interviews with relevant personnel and inspection of relevant documentation.
   • Verification is completed using the TSM protocols provided by MAC – these will be the audit working papers.
   • Indicate in the appropriate comment box why a particular level has been assigned.

3. Reporting
   • The VSP report should include (at a minimum) a verification statement confirming the completion of the verification and its results.
   • The VSP report will be provided to the client. The client will submit the verified results to MAC for publication in the TSM Progress Report.

• Site visits are not absolutely required for TSM verifications. To date, site visits have been conducted in the vast majority of cases.
Public Reporting

• Publication of results
  • company specific
  • aggregated for the membership as a whole

• On website

• Useful for comparison between companies (and peer pressure)
Aboriginal and Community Outreach Assessments

Percent of Facilities at Level A or Higher
2006 - 2011

- Community of interest (COI) identification
  - 2006: 24%, 2010: 48%, 2011: 55%
- Effective COI engagement and dialogue
  - 2006: 25%, 2010: 42%, 2011: 40%
- COI response mechanism
  - 2006: 27%, 2010: 44%, 2011: 50%
- Reporting
  - 2006: 52%, 2010: 66%, 2011: 93%
TSM Results

Crisis Management Planning Assessments
Percent of Companies & Facilities Responding "YES"
2006 - 2011

- Crisis management preparedness: 31, 56, 61%
- Review: 34, 45, 49%
- Training: 23, 50, 61%

2006 (58 assessments)
2010 (72 Assessments)
2011 (74 assessments)
## TSM Results

### Energy Use and GHG Emissions Management Assessments

**Percent of Facilities at Level A or Higher**

#### 2006 - 2011

<table>
<thead>
<tr>
<th>Category</th>
<th>2006 (40 assessments)</th>
<th>2010 (55 Assessments)</th>
<th>2011 (59 assessments)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy use management systems</td>
<td>9 23%</td>
<td>21 38%</td>
<td>25 42%</td>
</tr>
<tr>
<td>Energy use reporting systems</td>
<td>17 44%</td>
<td>24 44%</td>
<td>38 64%</td>
</tr>
<tr>
<td>Energy intensity performance targets</td>
<td>7 18%</td>
<td>15 27%</td>
<td>22 37%</td>
</tr>
<tr>
<td>GHG emissions management systems</td>
<td>5 13%</td>
<td>12 22%</td>
<td>19 32%</td>
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TSM Results

Tailings Management Assessments
Percent of Facilities at Level A or Higher
2006 - 2011
TSM is evolving

In 2009, MAC Board approved:

- The Aboriginal and Community Outreach protocol (to replace External Outreach)
- The Biodiversity Conservation protocol
- The Safety and Health framework and protocol

These are the first new indicators since the program was launched

In 2012, MAC Board approved:

- Revised indicators for energy use and GHG emissions management – reporting on the revised indicators will begin in 2014.

Work-in-progress

Closure

- Draft protocol prepared and expected to be available for voluntary use in 2013.
**TSM is a leader in the CSR field**

- Globe Foundation Award for Environmental Excellence
- PDAC Award for Environmental and Social Responsibility
- Sustainalytics:
  - “…through participation in the Mining Association of Canada’s (MAC) Towards Sustainable Mining (TSM) initiative, industry members are collaboratively addressing some of the inherent environmental and social impacts associated with mining operations. TSM is a robust tool that allows companies to report environmental and social data and includes external verification of performance. TSM also includes a protocol for tailings management, the disposal of which is a highly contentious issue for the sector. The actions of some companies, that continue to discharge tailings into rivers damaging river ecosystems and the communities that rely on them, reflect negatively on the industry as a whole.”

Editorial: Rio+20 and looking back at 20 years of corporate social responsibility, Macleans
Canadian Business for Social Responsibility

More interpretive
Less guidance
Little compliance

More prescriptive
More guidance
Stricter compliance
For additional information

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