



SUSTAINABILITY ACCOUNTING STANDARD
NON-RENEWABLE RESOURCES SECTOR

METALS & MINING

Sustainability Accounting Standard

Sustainable Industry Classification System™ (SICS™) #NR0302

Prepared by the
Sustainability Accounting Standards Board®

June 2014
Provisional Standard

METALS & MINING

Sustainability Accounting Standard

About SASB

The Sustainability Accounting Standards Board (SASB) provides sustainability accounting standards for use by publicly-listed corporations in the U.S. in disclosing material sustainability information for the benefit of investors and the public. SASB standards are designed for disclosure in mandatory filings to the Securities and Exchange Commission (SEC), such as the Form 10-K and 20-F. SASB is an independent 501(c)3 non-profit organization. Through 2016, SASB is developing standards for more than 80 industries in 10 sectors.

SUSTAINABILITY ACCOUNTING STANDARDS BOARD

75 Broadway, Suite 202
San Francisco, CA 94111
415.830.9220
info@sasb.org

www.sasb.org

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INTRODUCTION

Purpose & Structure

This document contains the SASB Sustainability Accounting Standard (SASB Standard) for Metals & Mining.

SASB Standards are comprised of **(1) disclosure guidance and (2) accounting standards on sustainability topics** for use by U.S. and foreign public companies in their annual filings (Form 10-K or 20-F) with the U.S. Securities and Exchange Commission (SEC). To the extent relevant, SASB Standards may also be applicable to other periodic mandatory filings with the SEC, such as the Form 10-Q, Form S-1, and Form 8-K.

SASB's disclosure guidance identifies sustainability topics at an industry level, which may be material— depending on a company's specific operating context— to a company within that industry.

Each company is ultimately responsible for determining which information is material and is therefore required to be included in its Form 10-K or 20-F and other periodic SEC filings.

SASB's accounting standards provide companies with standardized accounting metrics to account for performance on industry-level sustainability topics. When making disclosure on sustainability topics, companies adopting SASB's accounting standards will help to ensure that disclosure is standardized and therefore useful, relevant, comparable and auditable.

Industry Description

The Metals & Mining industry is involved in extracting all metals and minerals, producing ores, quarrying stones, smelting and manufacturing metals, refining metals, and providing mining support activities. It also produces iron ores, rare earth metals, and precious metals and stones. Larger companies in this industry are vertically integrated – from mining ores in several countries to wholesaling metals to customers.

Note: SASB has separate standards for the Iron & Steel Producers industry (NR0301).

Guidance for Disclosure of Material Sustainability Topics in SEC filings

1. Industry-Level Material Sustainability Topics

For the Metals & Mining industry, SASB has identified the following material sustainability topics:

- **Greenhouse Gas Emissions**
- **Air Quality**
- **Energy Management**
- **Water Management**
- **Waste & Hazardous Materials Management**
- **Biodiversity Impacts**
- **Community Relations**
- **Security, Human Rights and Rights of Indigenous Peoples**
- **Workforce Health, Safety, and Well-Being**
- **Labor Relations**
- **Business Ethics & Payments Transparency**

2. Company-Level Determination and Disclosure of Material Sustainability Topics

Sustainability disclosures are governed by the same laws and regulations that govern disclosures by securities issuers generally. According to the U.S. Supreme Court, a fact is material if, in the event such fact is omitted from a particular disclosure, there is “a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the ‘total mix’ of the information made available.”^{1,2}

SASB has attempted to identify those sustainability topics that it believes may be material for all companies within each SICS industry. SASB recognizes, however, that each company is ultimately responsible for determining what is material to it.

Regulation S-K, which sets forth certain disclosure requirements associated with Form 10-K and other SEC filings, requires companies, among other things, to describe in the Management’s Discussion and Analysis of Financial Condition and Results of Operations (MD&A) section of Form 10-K “any known trends or uncertainties that have had or that the registrant reasonably expects will have a material favorable or unfavorable impact on net sales or revenues or income from continuing operations. If the registrant knows of events that will cause a material change in the relationship between costs and revenues (such as known future increases in costs of labor or materials or price increases or inventory adjustments), the change in the relationship shall be disclosed.”²

Furthermore, Instructions to Item 303 state that the MD&A “shall focus specifically on material events and uncertainties known to management that would cause reported financial information not to be necessarily indicative of future operating results or of future financial condition.”²

In determining whether a trend or uncertainty should be disclosed, the SEC has stated that management should use a two-part assessment based on probability and magnitude:

- First, a company is not required to make disclosure about a known trend or uncertainty if its management determines that such trend or uncertainty is not reasonably likely to occur.

¹ TSC Industries v. Northway, Inc., 426 U.S. 438 (1976).

² C.F.R. 229.303(Item 303)(a)(3)(ii).

- If a company's management cannot make a reasonable determination of the likelihood of an event or uncertainty, then disclosure is required unless management determines that a material effect on the registrant's financial condition or results of operation is not reasonably likely to occur.

3. Sustainability Accounting Standard Disclosures in Form 10-K.

a. Management's Discussion and Analysis

Companies should consider making disclosure on sustainability topics as a complete set in the MD&A, in a sub-section titled "**Sustainability Accounting Standards Disclosures.**"³

b. Other Relevant Sections of Form 10-K

In addition to the MD&A section, companies should consider disclosing sustainability information in other sections of Form 10-K, as relevant, including:

- **Description of business**—Item 101 of Regulation S-K requires a company to provide a description of its business and its subsidiaries. Specifically Item 101(c)(1)(xii) expressly requires disclosure regarding certain costs of complying with environmental laws:

Appropriate disclosure also shall be made as to the material effects that compliance with Federal, State and local provisions which have been enacted or adopted regulating the discharge of materials into the environment, or otherwise relating to the protection of the environment, may have upon the capital expenditures, earnings and competitive position of the registrant and its subsidiaries.

- **Legal proceedings**—Item 103 of Regulation S-K requires companies to describe briefly any material pending or contemplated legal proceedings. Instructions to Item 103 provide specific disclosure requirements for administrative or judicial proceedings arising from laws and regulations targeting discharge of materials into the environment or primarily for the purpose of protecting the environment.
- **Risk factors**—Item 503(c) of Regulation S-K requires filing companies to provide a discussion of the most significant factors that make an investment in the registrant speculative or risky, clearly stating the risk and specifying how a particular risk affects the particular filing company.

c. Rule 12b-20

Securities Act Rule 408 and Exchange Act Rule 12b-20 require a registrant to disclose, in addition to the information expressly required by law or regulation, "such further material information, if any, as may be necessary to make the required statements, in light of the circumstances under which they are made, not misleading."

More detailed guidance on disclosure of material sustainability topics can be found in the **SASB Conceptual Framework**, available for download via <http://www.sasb.org/approach/conceptual-framework/>.

³ SEC [Release Nos. 33-8056; 34-45321; FR-61] Commission Statement about Management's Discussion and Analysis of Financial Condition and Results of Operations: "We also want to remind registrants that disclosure must be both useful and understandable. That is, management should provide the most relevant information and provide it using language and formats that investors can be expected to understand. Registrants should be aware also that investors will often find information relating to a particular matter more meaningful if it is disclosed in a single location, rather than presented in a fragmented manner throughout the filing."

Guidance on Accounting of Material Sustainability Topics

For material sustainability topics in the Metals & Mining industry, SASB identifies accounting metrics.

SASB recommends that each company consider using these sustainability accounting metrics when disclosing its performance with respect to each of the sustainability topics it has identified as material.

As appropriate—and consistent with Rule 12b-20⁴—for each sustainability topic, companies should consider including a narrative description of any material factors necessary to ensure completeness, accuracy and comparability of the data reported. Where not addressed by the specific accounting metrics, but relevant, the registrant should discuss the following related to the topic:

- the registrant's **strategic approach** to managing performance on material sustainability issues;
- the registrant's **competitive positioning**;
- the **degree of control** the registrant has;
- any **measures the registrant has undertaken** or **plans to undertake** to improve performance; and
- data for registrant's **last three completed fiscal years** (when available).

SASB recommends that registrants use SASB Standards specific to their primary industry as identified in the [Sustainable Industry Classification System \(SICS™\)](#). If a registrant generates significant revenue from multiple industries, SASB recommends that it consider the materiality of the sustainability issues that SASB has identified for those industries and disclose the associated SASB accounting metrics.

Users of the SASB Standards

The SASB Standards are intended for companies that engage in public offerings of securities registered under the Securities Act of 1933 (the Securities Act) and those that issue securities registered under the Securities Exchange Act of 1934 (the Exchange Act)⁵, for use in SEC filings, including, without limitation, annual reports on Form 10-K (Form 20-F for foreign issuers), quarterly reports on Form 10-Q, current reports on Form 8-K, and registration statements on Forms S-1 and S-3. Nevertheless, disclosure with respect to the SASB Standards is not required or endorsed by the SEC or other entities governing financial reporting, such as FASB, GASB, or IASB.

⁴ SEC Rule 12b-20: "In addition to the information expressly required to be included in a statement or report, there shall be added such further material information, if any, as may be necessary to make the required statements, in the light of the circumstances under which they are made not misleading."

⁵ Registration under the Securities Exchange Act of 1934 is required (1) for securities to be listed on a national securities exchange such as the New York Stock Exchange, the NYSE Amex and the NASDAQ Stock Market or (2) if (A) the securities are equity securities and are held by more than 2,000 persons (or 500 persons who are not accredited investors) and (B) the company has more than \$10 million in assets.

Scope of Disclosure

Unless otherwise specified, SASB recommends:

- That a registrant disclose on sustainability issues and metrics for itself and for entities in which the registrant has a controlling interest and therefore are consolidated for financial reporting purposes (controlling interest is generally defined as ownership of 50% or more of voting shares)⁶
- That for consolidated entities, disclosures be made, and accounting metrics calculated, for the whole entity, regardless of the size of the minority interest; and
- That information from unconsolidated entities not be included in the computation of SASB accounting metrics. A registrant should disclose, however, information about unconsolidated entities to the extent that such registrant considers the information necessary for investors to understand its performance with respect to sustainability issues (typically this disclosure would be limited to risks and opportunities associated with these entities).

Reporting Format

Activity Metrics and Normalization

SASB recognizes that normalizing accounting metrics is important for the analysis of SASB disclosures.

SASB recommends that a registrant disclose any basic business data that may assist in the accurate evaluation and comparability of disclosure, to the extent that they are not already disclosed in the Form 10-K (e.g., revenue, EBITDA, etc.).

Such data – termed “activity metrics” – may include high-level business data such as total number of employees, quantity of products produced or services provided, number of facilities, or number of customers. It may also include industry-specific data such as plant capacity utilization (e.g., for specialty chemical companies), number of transactions (e.g., for internet media and services companies), hospital bed days (e.g., for health care delivery companies), or proven and probable reserves (e.g., for oil and gas exploration and production companies).

Activity metrics disclosed should:

- Convey contextual information that would not otherwise be apparent from SASB accounting metrics.
- Be deemed generally useful for users of SASB accounting metrics (e.g., investors) in performing their own calculations and creating their own ratios.
- Be explained and consistently disclosed from period to period to the extent they continue to be relevant – however, a decision to make a voluntary disclosure in one period does not obligate a continuation of that disclosure if it is no longer relevant or if a better metric becomes available.

⁶ See US GAAP consolidation rules (Section 810).

Where relevant, SASB recommends specific activity metrics that – at a minimum – should accompany SASB accounting metric disclosures.

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE
Production of (1) metal ores and (2) finished metal products	Quantitative	Metric tons saleable (t)	NR0302-A
Total number of employees, percentage contractors	Quantitative	Number, Percentage (%)	NR0302-B

Units of Measure

Unless specified, disclosures should be reported in International System of Units (SI units).

Uncertainty

SASB recognizes that there may be inherent uncertainty when disclosing certain sustainability data and information. This may be related to variables like the imperfectness of third-party reporting systems or the unpredictable nature of climate events. Where uncertainty around a particular disclosure exists, SASB recommends that the registrant should consider discussing its nature and likelihood.

Estimates

SASB recognizes that scientifically-based estimates, such as the reliance on certain conversion factors or the exclusion of *de minimis* values, may be necessary for certain quantitative disclosures. Where appropriate, SASB does not discourage the use of such estimates. When using an estimate for a particular disclosure, SASB expects that the registrant discuss its nature and substantiate its basis.

Timing

Unless otherwise specified, disclosure shall be for the registrant's fiscal year.

Limitations

There is no guarantee that SASB Standards address all sustainability impacts or opportunities associated with a sector, industry, or company and, therefore, a company must determine for itself the topics—sustainability-related or otherwise—that warrant discussion in its SEC filings.

Disclosure under SASB Standards is voluntary. It is not intended to replace any legal or regulatory requirements that may be applicable to user operations. Where such laws or regulations address legal or regulatory topics, disclosure under SASB Standards is not meant to supersede those requirements. Disclosure according to SASB Standards shall not be construed as demonstration of compliance with any law, regulation, or other requirement.

SASB Standards are intended to be aligned with the principles of materiality enforced by the SEC. However, SASB is not affiliated with or endorsed by the SEC or other entities governing financial reporting, such as FASB, GASB, or IASB.

Forward Looking Statements

Disclosures on sustainability topics can involve discussion of future trends and uncertainties related to the registrant's operations and financial condition, including those influenced by external variables (e.g., environmental, social, regulatory and political). Companies making such disclosures should familiarize themselves with the safe harbor provisions of Section 27A of the Securities Act and Section 21E of the Exchange Act, which preclude civil liability for material misstatements or omissions in such statements if the registrant takes certain steps, including, among other things, identifying the disclosure as forward looking and accompanying such disclosure with "meaningful cautionary statements identifying important factors that could cause actual results to differ materially from those in the forward-looking statements."

Assurance

In disclosing to SASB Standards, it is expected that registrants disclose with the same level of rigor, accuracy, and responsibility as all other information contained in their SEC filings.

SASB encourages registrants to use independent assurance (attestation), for example, an Examination Engagement to AT Section 101.

Table 1. Material Sustainability Topics & Accounting Metrics

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under a regulatory program	Quantitative	Metric tons CO ₂ -e, Percentage (%)	NR0302-01
	Description of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	NR0302-02
Air Quality	Air emissions for the following pollutants: CO, NO _x (excluding N ₂ O), SO _x , particulate matter (PM), mercury (Hg), lead (Pb), and volatile organic compounds (VOCs)	Quantitative	Metric tons (t)	NR0302-03
Energy Management	Total energy consumed, percentage grid electricity, percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	NR0302-04
Water Management	Total fresh water withdrawn, percentage recycled, percentage in regions with High or Extremely High Baseline Water Stress	Quantitative	Cubic meters (m ³), Percentage (%)	NR0302-05
	Number of incidents of non-compliance with water-quality permits, standards, and regulations	Quantitative	Number	NR0302-06
Waste & Hazardous Materials Management	Total weight of tailings waste, percentage recycled	Quantitative	Metric tons (t), Percentage (%)	NR0302-07
	Total weight of mineral processing waste, percentage recycled	Quantitative	Metric tons (t), Percentage (%)	NR0302-08
	Number of tailings impoundments, broken down by MSHA hazard potential	Quantitative	Number	NR0302-09
Biodiversity Impacts	Description of environmental management policies and practices for active sites	Discussion and Analysis	n/a	NR0302-10
	Percentage of mine sites where acid rock drainage is: (1) predicted to occur, (2) actively mitigated, and (3) under treatment or remediation	Quantitative	Percentage (%)	NR0302-11
	(1) Proven and (2) probable reserves in or near sites with protected conservation status or endangered species habitat	Quantitative	Metric tons (t), Grade (%)	NR0302-12

Table 1. Material Sustainability Topics & Accounting Metrics (cont.)

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE
Community Relations	Discussion of process to manage risks and opportunities associated with community rights and interests	Discussion and Analysis	n/a	NR0302-13
	Number and duration of non-technical delays	Quantitative	Number, Days	NR0302-14
Security, Human Rights, and Rights of Indigenous Peoples	(1) Proven and (2) probable reserves in or near areas of conflict	Quantitative	Metric tons (t), Grade (%)	NR0302-15
	(1) Proven and (2) probable reserves in or near indigenous land	Quantitative	Metric tons (t), Grade (%)	NR0302-16
	Discussion of engagement processes and due diligence practices with respect to human rights, indigenous rights, and operation in areas of conflict	Discussion and Analysis	n/a	NR0302-17
Workforce Health, Safety, and Well-Being	(1) MSHA All-Incidence Rate, (2) Fatality Rate, and (3) Near Miss Frequency Rate for (a) full-time employees and (b) contract employees	Quantitative	Rate	NR0302-18
Labor Relations	Percentage of active workforce covered under collective-bargaining agreements, broken down by U.S. and foreign employees	Quantitative	Percentage (%)	NR0302-19
	Number and duration of strikes and lockouts ^{IV}	Quantitative	Number, Days	NR0302-20
Business Ethics & Payments Transparency	Description of the management system for prevention of corruption and bribery throughout the value chain	Discussion and Analysis	n/a	NR0302-21
	Production in countries that have the 20 lowest rankings in Transparency International's Corruption Perception Index	Quantitative	Metric tons saleable (t)	NR0302-22

⁷ Note to **NR0302-20** – Disclosure shall include a description of the root cause for each work stoppage.

Greenhouse Gas Emissions

Description

Mining operations are energy-intensive and generate significant direct greenhouse gas (GHG) emissions, including carbon dioxide from fuel use during mining, ore processing, and smelting activities. The extent and type of GHG emissions can vary depending on the metal mined and processed. GHG emissions contribute to climate change, and create additional regulatory compliance costs and risks for metals and mining companies due to climate change mitigation policies. Companies that cost-effectively reduce GHG emissions from their operations by implementing industry-leading technologies and processes can create operational efficiency. They can mitigate the impact on value from increased fuel costs and regulations that limit – or put a price on – carbon emissions, which are occurring as regulatory and public concerns about climate change are increasing in the U.S. and globally.

Accounting Metrics

NR0302-01. Gross global Scope 1 emissions, percentage covered under a regulatory program

- .01 The registrant shall disclose gross global Scope 1 greenhouse gas (GHG) emissions to the atmosphere of the six greenhouse gases covered under the Kyoto Protocol: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.
- Emissions of all gases shall be disclosed in metric tons of carbon dioxide equivalent (CO₂-e), calculated in accordance with published global warming potential (GWP) factors. To date, the preferred source for global warming potential factors is the Intergovernmental Panel on Climate Change's (IPCC) Fourth Assessment Report (2007).
 - Gross emissions are GHGs emitted to the atmosphere before accounting for any GHG reduction activities, offsets, or other adjustments for activities in the reporting period that have reduced or compensated for emissions.
- .02 Scope 1 emissions are defined by the World Resources Institute and the World Business Council on Sustainable Development (WRI/WBCSD) [The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard](#), Revised Edition, March 2004 (hereafter, the "GHG Protocol").
- These emissions include direct emissions of GHGs from stationary or mobile sources that include, but are not limited to, equipment at mine site, refineries and smelting facilities, office buildings, and metal transportation (marine, road, and rail).
- .03 GHG emission data shall be consolidated according to the approach with which the registrant consolidates its financial reporting data, which is generally aligned with:
- The Financial Control approach defined by the GHG Protocol and referenced by the [CDP Guidance for companies reporting on climate change on behalf of investors & supply chain members 2014](#) (hereafter, the "CDP Guidance").⁸

⁸ "An organization has financial control over an operation if it has the ability to direct the financial and operating policies of the operation with a view to gaining economic benefits from its activities. Generally an organization has financial control over an operation for GHG accounting purposes if the operation is treated as a group company or subsidiary for the purposes of financial consolidation." *Guidance for companies reporting on climate change on behalf of investors & supply chain members 2014* (p. 94).

- The approach detailed in Section 4.23 “Organizational boundary setting for GHG emissions reporting” of Climate Disclosure Standards Board (CDSB) Climate Change Reporting Framework (CCRF).⁹
- .04 The underlying technical approach to data collection, analysis, and disclosure shall be consistent with the CDP Guidance.
- The registrant shall consider the CDP Guidance as a normative reference; thus, any updates made year-on-year shall be considered updates to this guidance.
- .05 The registrant shall disclose the percentage of its emissions that are covered under a regulatory program, such as the European Union Emissions Trading Scheme (EU ETS), Western Climate Initiative (WCI), California Cap-and-Trade (California Global Warming Solutions Act), or other regulatory programs.
- Regulatory programs include cap-and-trade schemes and carbon tax/fee systems.
 - Disclosure shall exclude emissions covered under voluntary trading systems and disclosure-based regulations (e.g., the U.S. Environmental Protection Agency (EPA) mandatory reporting rule).
- .06 The registrant should discuss any change in its emissions from the previous fiscal year, such as if the change was due to emissions reductions, divestment, acquisition, mergers, changes in output, and/or changes in calculation methodology.
- .07 In the case that current reporting of GHG emissions to the CDP or other entity (e.g., a national regulatory disclosure program) differs in terms of the scope and consolidation approach used, the registrant may disclose those emissions. However, primary disclosure shall be according to the guidelines previously mentioned.
- .08 The registrant should discuss the calculation methodology for its emission disclosure, such as if data are from continuous emissions monitoring systems (CEMS), engineering calculations, mass balance calculations, etc.
- .09 This accounting metric corresponds to section CC8.2 of the Carbon Disclosure Project (CDP) Questionnaire and section 4.25 of the Climate Disclosure Standards Board (CDSB) Climate Change Reporting Framework (CCRF).
- .10 The registrant should, where relevant, provide a breakdown of its emissions by mineral or business unit.
- Minerals or business units may include, for example: aluminum, copper, zinc, iron ore, precious metals, diamonds, etc.

⁹ This approach is based on the requirements of the International Accounting Standards/International Financial Reporting Standards (IAS/IFRS) on consolidation and equity accounting. It is consistent with the way in which information relating to entities within a group, or interest in joint ventures/associates, would be included in consolidated financial statements. *Climate Change Reporting Framework*, CDSB

NR0302-02. Description of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets

.11 The registrant shall discuss the following where relevant:

- The scope, including if strategies, plans, and/or reduction targets pertain differently to different business units, geographies, or emissions sources.
- If strategies, plans, and/or reduction targets are related to or associated with an emissions disclosure (reporting) or reduction program (e.g., EU ETS, Regional Greenhouse Gas Initiative (RGGI), WCI, etc.), including regional, national, international or sectoral programs.
- The activities and investments required to achieve the plans and any risks or limiting factors that might affect achievement of the plans and/or targets.

.12 For emission reduction targets, the registrant shall disclose:

- The percentage of emissions within the scope of the reduction plan.
- The percentage reduction from the base year.
- The base year is the first year against which emissions are evaluated towards the achievement of the target.
- Whether the target is absolute or intensity-based, and the metric denominator, if it is an intensity-based target.
- The timelines for the reduction activity, including the start year, the target year, and the base year. Disclosure shall be limited to activities that were ongoing (active) or that reached completion during the fiscal year.
- The mechanism(s) for achieving the target, such as energy efficiency efforts, energy source diversification, carbon capture and storage, etc.

.13 Where necessary, the registrant shall discuss any circumstances in which the target base year emissions have been or may be re-calculated retrospectively, or in which the target base year has been reset.

.14 This accounting metric corresponds with:

- CDSB Section 4, "Management Actions"¹⁰
- CDP questionnaire "CC3. Targets and Initiatives"

¹⁰ 4.12, "Disclosure shall include a description of the organization's long-term and short-term strategy or plan to address climate change-related risks, opportunities and impacts, including targets to reduce GHG emissions and an analysis of performance against those targets." *Climate Change Reporting Framework – Edition 1.1*, October 2012, CDSB.

Air Quality

Description

Other air emissions from the Metals & Mining industry include hazardous air pollutants, criteria air pollutants, and Volatile Organic Compounds (VOCs) from smelting and refining activities. These can have significant, localized human health and environmental impacts. Depending on the metal, uncaptured sulfur dioxide, lead, mercury, cadmium, and arsenic are among the chief pollutants, along with particulate matter. The Metals & Mining industry is a significant source of some of these pollutants relative to other industries. Financial impacts on companies will vary depending on the specific location of operations and the prevailing air emissions regulations. Active management of the issue – through technological and process improvements – could allow companies to limit the impacts of increasingly stringent air quality regulations globally. Companies could also benefit from operational efficiencies that could lead to a lower cost structure over time.

Accounting Metrics

NR0302-03. Air emissions for the following pollutants: CO, NO_x (excluding N₂O), SO_x, particulate matter (PM), mercury (Hg), lead (Pb), and volatile organic compounds (VOCs)

- .15 The registrant shall disclose its emissions released to the atmosphere of air pollutants associated with its activities (e.g., refining through primary production):
- Direct air emissions from stationary or mobile sources include, but are not limited to, equipment at mining sites, smelters and refineries, primary production facilities, chemical plants, office buildings, marine vessels transporting products, truck fleets, and moveable equipment at mining and production facilities.
- .16 The registrant shall disclose emissions released to the atmosphere by emissions type. Substances include:
- Carbon monoxide (CO);
 - Oxides of nitrogen (including NO and NO₂ and excluding N₂O) reported as NO₂;
 - Oxides of sulfur (SO₂ and SO₃) reported as SO₂;
 - Particulate matter (PM); reported as the sum of PM₁₀ and PM_{2.5}, or all particulates less than 10 micrometers in diameter;
 - Mercury (Hg);
 - Lead (Pb);
 - Non-methane volatile organic compounds (VOCs), defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and methane, which participates in atmospheric photochemical reactions, except those designated by the EPA as having negligible photochemical reactivity.

- .17 This scope does not include CO₂, CH₄, and N₂O, which are disclosed in NR0302-01, as Scope 1 GHG emissions.
- .18 Air-emissions data shall be consolidated according to the approach with which the registrant consolidates its financial reporting data, which is aligned with the consolidation approach used for NR0302-01.
- .19 The registrant should discuss the calculation methodology for its emission disclosure, such as if data are from continuous emissions-monitoring systems (CEMS), engineering calculations, mass-balance calculations, etc.
- .20 The registrant should, where relevant, provide a breakdown of its emissions by mineral or business unit.
- Minerals or business units may include, for example: aluminum, copper, zinc, iron ore, precious metals, diamonds, etc.

Energy Management

Description

Mining and metals production is an energy-intensive process, with a significant proportion of energy consumption in the industry accounted for by purchased electricity. While fuel combustion on-site contributes to the industry's direct (Scope 1) GHG emissions, electricity purchases from the grid create indirect impacts on the climate through Scope 2 emissions. The energy intensity of operations is likely to increase with decreasing grades of deposits and increasing depth and scale of mining operations. The choice between on-site versus grid-sourced electricity, and use of alternative energy, can play an important role in influencing both the costs and reliability of energy supply. Affordable and easily accessible energy is essential for competing in a commodity market driven by global competition; purchased fuels and electricity account for a significant proportion of total production costs. The way in which a company manages its overall energy efficiency and intensity, its reliance on different types of energy and associated sustainability risks, and its ability to access alternative sources of energy, can therefore be material.

Accounting Metrics

NR0302-04. Total energy consumed, percentage grid electricity, percentage renewable

- .21 The registrant shall disclose total energy consumption from all sources as an aggregate figure in gigajoules or their multiples.
 - The scope includes energy purchased from sources external to the organization or produced by the organization itself (self-generated).
 - The scope includes only energy consumed by entities owned or controlled by the organization.
 - The scope includes energy from all sources including direct fuel usage, purchased electricity, and heating, cooling, and steam energy.
- .22 In calculating energy consumption from fuels and biofuels, the registrant shall use higher heating values (HHV), also known as gross calorific values (GCV), and which are directly measured or taken from the Intergovernmental Panel on Climate Change (IPCC), the U.S. Department of Energy (DOE), or the U.S. Energy Information Administration (EIA).
- .23 The registrant shall disclose purchased grid electricity consumption as a percentage of its total energy consumption.
- .24 The registrant shall disclose renewable energy consumption as a percentage of its total energy consumption.
 - The scope of renewable energy includes the renewable energy the registrant directly produces, purchases through a renewable power purchase agreement (PPA) that explicitly includes renewable energy certificates (RECs), or for which Green-e Energy Certified RECs are paired with grid electricity. For all renewable energy consumed as electricity in this manner, RECs must be retired on behalf of the registrant to be claimed as renewable energy as part of this disclosure.

- For any renewable electricity generated on-site, any RECs must be retained (i.e., not sold) and retired on behalf of the registrant in order for the registrant to claim them as renewable energy.
 - For renewable PPAs, the agreement must explicitly include and convey that RECs be retained and retired on behalf of the registrant in order for the registrant to claim them as renewable energy.
 - The renewable portion of the electricity grid mix that is outside of the control or influence of the registrant is excluded from disclosure.¹¹
- .25 Renewable energy is defined as energy from sources that are capable of being replenished in a short time through ecological cycles, such as geothermal, wind, solar, hydro, and biomass.
- For the purposes of this disclosure, the scope of renewable energy from hydro and biomass sources are limited to the following:
 - Energy from hydro sources that are certified by the Low Impact Hydropower Institute.
 - Energy from biomass sources biomass sources are limited to those that are considered “eligible renewables” according to the Green-e Energy National Standard Version 2.4 or eligible for a state Renewable Portfolio Standard.
- .26 The registrant shall apply conversion factors consistently for all data reported under this disclosure, such as the use of HHVs for fuel usage (including biofuels) and conversion of kWh to gigajoules (including for electricity from solar or wind energy).

¹¹ SASB recognizes that RECs reflect the environmental attributes of renewable energy that have been introduced to the grid, and that a premium has been paid by the purchaser of the REC to enable generation of renewable energy beyond any renewable energy already in the grid mix, absent the market for RECs.

Water Management

Description

Mining and metals production has impacts on both the quantity and the quality of local water resources. Metals and mining companies face operational, regulatory, and reputational risks due to water scarcity, costs of water acquisition, regulations on effluents or amount of water used, and competition with local communities and other industries for limited water resources. Impacts of water-intensive production and potential contamination of water resources include higher costs, liabilities, and lost revenues due to curtailment or suspension of operations. The severity of these risks can vary depending on the region's water resources and regulatory environment. Companies in the industry are addressing risks by increasingly using new technologies, including desalination, water recirculation, and innovative waste-disposal solutions. Reducing water use and contamination could also create operational efficiency for companies and lower their operating costs.

Accounting Metrics

NR0302-05. Total fresh water withdrawn, percentage recycled, percentage in regions with High or Extremely High Baseline Water Stress

- .27 The registrant shall disclose the amount of water (in cubic meters) that was withdrawn from freshwater sources for use in operations.
- Fresh water may be defined according to the local statutes and regulations where the registrant operates.
 - Where there is no regulatory definition, fresh water shall be considered to be water that has a total dissolved solids (TDS) concentration of less than 1000 mg/l per the Water Quality Association [definition](#).
- .28 Water obtained from a water utility can be assumed to meet the definition of freshwater.¹²
- .29 The registrant shall disclose the percentage of water recycled as the volume (in cubic meters) recycled divided by the volume of water withdrawn.
- Any volume of water reused multiple times shall be counted as recycled each time it is recycled and reused.
- .30 Using the World Resources Institute's (WRI) Water Risk Atlas tool, Aqueduct (publicly available online [here](#)), the registrant shall analyze all of its operations for water risks and identify facilities that are in a location with High (40–80%) or Extremely High (>80%) Baseline Water Stress. Water withdrawn in locations with High or Extremely High Baseline Water Stress shall be indicated as a percentage of the total water withdrawn.
- .31 This accounting metric corresponds to section W5. Water Accounting of the CDP's [2014 Water Information Request](#).

¹² <http://water.epa.gov/drink/contaminants/secondarystandards.cfm>

NR0302-06. Number of incidents of non-compliance with water-quality permits, standards, and regulations

- .32 The registrant shall disclose the total number of instances of non-compliance, including violations of a technology-based standard and exceedances of a quality-based standard.
- .33 The scope of disclosure includes incidents related to statutory permits and regulations or voluntary agreements, standards, or guidelines, such as total maximum daily load (TMDL) exceedances.
- .34 Voluntary standards include the registrant's own water-quality standards (parameters) or "effluent guidelines" from the International Finance Corporation's (IFC) "Environmental, Health, and Safety Guidelines for Mining."
- Typical parameters of concern include arsenic, copper, lead, nickel, zinc, cyanide, radium-226, total suspended solids, pH, and toxicity.
- .35 An incident of non-compliance shall be disclosed regardless of whether it resulted in an enforcement action (e.g., fine, warning letter, etc.).
- .36 Violations, regardless of their measurement methodology or frequency, shall be disclosed. These include:
- For continuous discharges, limitations, standards, and prohibitions that are generally expressed as maximum daily, weekly average, and monthly average.
 - For non-continuous discharges, limitations that are generally expressed in terms of frequency, total mass, maximum rate of discharge, and mass or concentrations of specified pollutants.

Waste & Hazardous Materials Management

Description

The Metals & Mining industry generates large volumes of mineral processing and smelting wastes, including slags and tailings, some of which may be hazardous or chemically reactive. Impoundments for tailings can cover large areas of land. This can present a significant threat if the impoundments burst, collapse, or leak, leading to destruction of lives, property, and ecosystems. Mineral wastes are also often stored in-pit, using abandoned open-pit surface mines. Such storage can create the potential for groundwater contamination and could affect the stability of active mines in the area. Companies that reduce and recycle waste streams, lower the number of tailings ponds, and ensure the integrity of their impoundments could lower regulatory and litigation risks, remediation liabilities, and costs. Additionally, tailings can contain toxic chemical residues from extraction and processing operations. Companies face associated risks from the use of such chemicals. Companies' ability to manage the sourcing, transport, use, and disposal of mining and metal processing chemicals and by-products can lower these risks.

Accounting Metrics

NR0302-07. Total weight of tailings waste, percentage recycled

.37 The amount of total tailings waste shall be calculated in metric tons, where waste is defined as anything for which the registrant has no further use and which is discarded or released to the environment.

- The scope includes tailings waste generated from mining activities.
- The scope of disclosure excludes waste rock and overburden.

.38 The percentage recycled shall be calculated as the weight of waste material that was reused plus the weight recycled or remanufactured (through treatment or processing) by the registrant plus the amount sent externally for further recycling divided by the total weight of waste material, where:

- Reused materials are defined as those recovered materials that are used for the same purpose for which they were conceived.
- Recycled and remanufactured materials are defined as waste materials that have been reprocessed or treated by means of production or manufacturing process and made into a final product or made into a component for incorporation into a product.
- The scope of recycled and remanufactured products includes primary recycled materials, co-products (outputs of equal value to primary recycled materials), and by-products (outputs of lesser value to primary recycled materials).
- Portions of waste materials that are disposed of in landfills are not considered recycled; only the portions of materials that are directly incorporated into new products, co-products, or by-products shall be included in the percentage recycled.

- Materials sent for further recycling include those materials which are transferred to a third party for the expressed purpose of reuse, recycling, or refurbishment.
- Materials incinerated, including for energy recovery, are not considered reused or recycled. Energy recovery is defined as the use of combustible waste as a means to generate energy through direct incineration with or without other waste but with recovery of the heat.

NR0302-08. Total weight of mineral processing waste, percentage recycled

- .39 The amount of total mineral processing waste shall be calculated in metric tons, where waste is defined as anything for which the registrant has no further use and which is discarded or released to the environment.
- The scope includes waste generated during metals processing (e.g., smelting and refining), such as slags, dusts, sludges, and spent solvents.
 - The scope includes scrap metal, reject coal, used oil, and other solid wastes and excludes gaseous wastes.
- .40 The percentage recycled shall be calculated as the weight of waste material that was reused plus the weight recycled or remanufactured (through treatment or processing) by the registrant plus the amount sent externally for further recycling divided by the total weight of waste material, where:
- Reused materials are defined as those recovered products or components of products that are used for the same purpose for which they were conceived.
 - Recycled and remanufactured materials are defined as waste materials that have been reprocessed or treated by means of production or manufacturing process and made into a final product or made into a component for incorporation into a product.
 - The scope of recycled and remanufactured products includes primary recycled materials, co-products (outputs of equal value to primary recycled materials), and by-products (outputs of lesser value to primary recycled materials).
 - Portions of products and materials that are disposed of in landfills are not considered recycled; only the portions of products that are directly incorporated into new products, co-products, or by-products shall be included in the percentage recycled.
 - Materials sent for further recycling include those materials which are transferred to a third party for the expressed purpose of reuse, recycling, or refurbishment.
 - Materials incinerated, including for energy recovery, are not considered reused or recycled. Energy recovery is defined as the use of combustible waste as a means to generate energy through direct incineration with or without other waste but with recovery of the heat.

NR0302-09. Number of tailings impoundments, broken down by MSHA hazard potential

- .41 The registrant shall disclose the number of tailings impoundments according to the following U.S. Mine Safety and Health Administration (MSHA) hazard potential classification:
- High hazard potential
 - Significant hazard potential
 - Low hazard potential
- .42 For locations under the auspices of the MSHA, the hazard potential shall be determined by Mine Safety and Health enforcement personnel (Metal and Nonmetal) during regular (E01) inspections through verification that the mine operator has appropriately classified the dam or by assigning a hazard classification if the existing one does not appear reasonable or if no classification has been assigned.
- .43 For locations not under the auspices of the MSHA, hazard potential shall be determined by a third party following MSHA [Procedure Instruction Letter No. I13-IV-01](#) guidance.
- .44 High hazard potential impoundments are dams, regardless of their condition or size, whose failure will probably cause loss of life.
- These facilities are generally located in populated areas or where dwellings are found in the flood plain, and failure can reasonably be expected to cause loss of life, serious damage to homes, industrial and commercial buildings, and damage to important utilities, highways, or railroads.
- .45 Significant hazard potential impoundments are dams, regardless of their condition or size, whose failure would result in no probable loss of life but would disrupt important utilities or cause significant economic loss or significant environmental damage.
- These facilities are generally located in predominantly rural areas, but could be in populated areas with significant infrastructure, where failure could damage isolated homes, main highways, and minor railroads, or disrupt the use of service of public utilities.
- .46 Low hazard potential impoundments are dams whose failure would not be expected to cause loss of life, disrupt important utilities, or cause significant economic loss or significant environmental damage.
- These facilities are usually located in rural or agricultural areas where losses are limited principally to the owner's property or where failure would cause only slight damage to farm buildings, forest and agricultural land, and minor roads.
 - The scope includes only dams that either: (1) Equal or exceed 25 feet in height and can or do store a volume of more than 15 acre-feet, or (2) Exceed 6 feet in height and can or do store 50 or more acre-feet.
- .47 Hazard potential classification depends solely on the consequences of failure of the dam and not on the condition of the dam.
- .48 Hazard potential classification can change over time.

Biodiversity Impacts

Description

The development, operation, and closure of mines can have a range of impacts on biodiversity, such as alterations of landscape, vegetation removal, and destruction of wildlife habitats. Acid rock drainage is a particularly significant risk: it is highly acidic water, rich in heavy metals, formed when surface and shallow subsurface water come into contact with mining overburden. It can have harmful effects on humans, animals, and plants. Biodiversity impacts of mining operations can affect the valuation of reserves and create operational risks. The environmental characteristics of the land where reserves are located could increase extraction costs due to increasing awareness and protection of ecosystems. Companies could also face regulatory or reputational barriers to accessing reserves in ecologically sensitive areas. This may include new protection status afforded to areas where reserves are located. Metals and mining companies face regulatory risks related to reclamation after a mine is decommissioned, as they need to follow specific standards for restoring mined property according to a prior, approved reclamation plan. Material costs arise from removing or covering refuse piles, meeting water treatment obligations, and dismantling infrastructure at the end of life. Furthermore, ongoing mining operations might result in the violation of laws protecting endangered species. Companies that have an effective environmental management plan for different stages of the project lifecycle could minimize their compliance costs and legal liabilities, face less resistance in developing new mines, and avoid difficulties in obtaining permits, accessing reserves, and facing delays in project completion.

Accounting Metrics

NR0302-10. Description of environmental management policies and practices for active sites

.49 The registrant shall provide a brief description of its environmental management plan(s) implemented at active sites, including where relevant:

- Lifecycle stages to which the plan(s) apply, such as: pre-bid (when the registrant is considering acquisition of a site), exploration and appraisal, site development, production, and during closure, decommissioning, and restoration.
- The topics addressed by the plan(s), such as: ecological and biodiversity impacts, waste generation, noise impacts, emissions to air, discharges to water, natural resource consumption, and hazardous chemical usage.
- The underlying references for its plan(s), including whether they are codes, guidelines, standards, or regulations; whether they were developed by the registrant, an industry organization, a third-party organization (e.g., a non-governmental organization), a governmental agency, or some combination of these groups.

- .50 Where applicable and relevant, the registrant shall describe specific policies and practices that apply to areas with protected conservation status and/or areas of critical habitat, which are [defined](#) by the International Finance Corporation (IFC) as:
- Areas with high biodiversity value, including (i) habitat of significant importance to Critically Endangered and/or Endangered species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species; (iv) highly threatened and/or unique ecosystems; and/or (v) areas associated with key evolutionary processes.¹³
- .51 If the management policies and practices do not apply to all of the registrant's sites or operations, it shall indicate the percentage of sites to which they were applied.
- .52 Where environmental management policies and practices differ significantly by mineral resource (e.g., bauxite mining as compared to silver mining) then the registrant shall describe differences for each resource.
- .53 The registrant shall disclose the degree to which its policies and practices are aligned with the International Finance Corporation's (IFC) [Performance Standards on Environmental and Social Sustainability](#), January 1, 2012, including specifically:
- Performance Standard 1 – Assessment and Management of Environmental and Social Risks and Impacts.
 - Performance Standard 3 – Resource Efficiency and Pollution Prevention.
 - Performance Standard 4 – Community Health, Safety, and Security.
 - Performance Standard 6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources.
- .54 Additional relevant references may include:
- "[Environmental management in oil and gas exploration and production – An overview of issue and management approaches](#)," Joint E&P Forum/UNEP Technical Publication 1997.
 - "[Towards Sustainable Decommissioning and Closure of Oil Fields and Mines: A Toolkit to Assist Government Agencies](#)," DRAFT Version 2.0, November 2009, World Bank Multistakeholder Initiative.

NR0302-11. Percentage of mine sites where acid rock drainage is: (1) predicted to occur, (2) actively mitigated, and (3) under treatment or remediation

- .55 The registrant shall disclose the percentage of its sites (by annual production output from mines in metric tons) where acid-generating seepage into surrounding surface water and/or groundwater is: (1) predicted to occur, (2) actively mitigated, and (3) under treatment or remediation.
- .56 Acid Rock Drainage (ARD) is predicted to occur if, based on computer simulations, chemical evaluations, and/or acid-base accounting, it is biochemically likely that ARD could form at the mine site.

¹³ International Finance Corporation (IFC), Performance Standard 6, *Biodiversity Conservation and Sustainable Management of Living Natural Resources*, January 1, 2012.

- .57 ARD is considered to be actively mitigated if the registrant is preventing the formation of ARD through methods that include, but are not limited to: storing or covering sulfite-bearing minerals to prevent oxidation, flood prevention and mine sealing, mixing of acid buffering materials with acid-producing materials, or chemical treatment of sulfide wastes (e.g., organic chemicals designed to kill sulfide-oxidizing bacteria).
- .58 ARD is considered under treatment or remediation, if the acidic water discharged from the mine area is captured and undergoes a wastewater treatment process (active or passive).
- .59 The registrant may choose, where relevant, to provide a breakdown by mineral or business unit.
- Minerals or business units may include, for example: aluminum, copper, zinc, iron ore, precious metals, diamonds, etc.
- .60 ARD may also be referred to as acid-generating seepage or acid mine drainage.

NR0302-12. (1) Proven and (2) probable reserves in or near sites with protected conservation status or endangered species habitat

- .61 The registrant shall disclose the amount (in metric tons) and grade (in percentage metal content) of proven reserves in sites with protected conservation status plus the amount and grade of proven reserves in areas of endangered species habitat.
- The registrant shall, where relevant, provide a breakdown of calculations by mineral or business unit where minerals or business units include, for example: aluminum, copper, zinc, iron ore, platinum group metals, diamonds, etc.
- .62 The registrant shall disclose the amount (in metric tons) and grade (in percentage metal content) of probable reserves in sites with protected conservation status plus the amount and grade of probable reserves in areas of endangered species habitat.
- The registrant shall, where relevant, provide a breakdown of calculations by mineral or business unit where minerals or business units include, for example: aluminum, copper, zinc, iron ore, platinum group metals, diamonds, etc.
- .63 Reserves are considered to be in areas of protected conservation status if they are located within:
- International Union for Conservation of Nature (IUCN) Protected Areas (categories I-VI).
 - Ramsar Wetlands of International Importance.
 - UNESCO World Heritage Sites.
 - Biosphere Reserves recognized within the framework of UNESCO's Man and the Biosphere (MAB) Programme.
 - Natura 2000 sites.
 - Sites that meet the IUCN's definition of a protected area: "A protected area is a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long term conservation of nature with associated ecosystem services and cultural values."¹⁴

¹⁴ Dudley, N. (ed.) (2008) Guidelines for Applying Protected Areas Management Categories. IUCN: Gland, Switzerland. p.8-9.

- These sites may be listed in the World Database of Protected Areas (WDPA) and mapped on ProtectedPlanet.net.
- .64 Reserves are considered to be in endangered species habitat if they are in or near areas where IUCN Red List of Threatened Species that are classified as Critically Endangered (CR) or Endangered (EN) are extant.
- A species is considered extant in an area if it is a resident, present during breeding or non-breeding season, or if it makes use of the area for passage.
- .65 For the purposes of this disclosure, “near” is defined as within 5 kilometer (km) of the boundary of an area of protected conservation status or an endangered species habitat.
- .66 Reserves are defined by the SEC Industry Guide 7, Description of Property by Issuers Engaged or to Be Engaged in Significant Mining Operations:
- Reserves, as that part of a mineral deposit which could be economically and legally extracted or produced at the time of the reserve determination.
 - Proven (or measured) reserves, as reserves for which (a) quantity is computed from dimensions revealed in outcrops, trenches, workings, or drill holes; grade and/or quality are computed from the results of detailed sampling, and (b) the sites for inspection, sampling, and measurement are spaced so closely and the geographic character is so well-defined that size, shape, depth, and mineral content of reserves are well-established.
 - Probable (or indicated) reserves are reserves for which quantity and grade and/or quality are computed from information similar to that used for proven (measured) reserves, but the sites for inspection, sampling, and measurement are farther apart or are otherwise less adequately spaced. The degree of assurance, although lower than that for proven (measured) reserves, is high enough to assume continuity between points of observation.
- .67 The registrant should follow the Combined Reserves International Reporting Standards Committee (CRIRSCO) guidance for classifying ore reserves and mineral resources, including the use of a “competent person” to compile information.
- .68 The registrant may choose to separately identify reserves in areas with additional ecological, biodiversity, or conservation designations such as those listed by the A-Z Guide of Areas of Biodiversity Importance prepared by the United Nations Environment Programme’s World Conservation Monitoring Centre (UNEP-WCMC).
- .69 The registrant may choose to provide discussion around reserves that are located in protected areas or endangered species habitat but present low risk to biodiversity or ecosystem services; the registrant may choose to provide similar discussion for reserves located in areas with no official designation of high biodiversity value but that present high biodiversity or ecosystem services risks.

Additional references

The International Network for Acid Prevention (INAP) [Global Acid Rock Drainage \(GARD\) Guide](http://www.miningfacts.org/Environment/What-is-acid-rock-drainage/)
<http://www.miningfacts.org/Environment/What-is-acid-rock-drainage/>

Community Relations

Description

Mining activities take place over a number of years, and companies may be involved in multiple projects in a region that can have a wide range of community impacts. Community rights and interests may be affected through environmental and social impacts of mining operations, such as competition for access to local energy or water resources, air and water emissions, and waste from operations. Mining companies need support from local communities to be able to obtain permits and leases, and conduct their activities without disruptions. The expected value of reserves could be affected if the community interferes, or lobbies its government to interfere, with the rights of a mining company in relation to those reserves. In addition to community concerns about direct impacts of projects, the presence of mining activities may give rise to associated socio-economic concerns, such as education, health, livelihoods, and food security for the community. Metals and mining companies that are perceived as engaging in rent-seeking and exploiting a country or community's resources without providing any socio-economic benefits in return may be exposed to the risk of actions, motivated by resource nationalism, by host governments and communities. These could include imposition of ad hoc taxes and export restrictions. These risks may vary depending on the country, and could be higher in countries that are heavily reliant on mineral resources for their economic growth. Companies in the extractives industries can adopt various community engagement strategies in their global operations to manage risks and opportunities associated with community rights and interests. Strategies are often underpinned by the integration of community engagement into each phase of the project cycle. Companies are beginning to adopt a "shared value" approach to provide a key socio-economic benefit to the community while also creating value for the company.

Accounting Metrics

NR0302-13. Discussion of process to manage risks and opportunities associated with community rights and interests

.70 The registrant shall describe its processes, procedures, and practices to manage risks and opportunities associated with the rights and interests of communities in areas where it conducts business, where community rights and interests include:

- Economic rights and interests, including the right to employment, fair wages, payment transparency, and respect of infrastructure and agricultural land.
- Environmental rights and interests, including the right to clean local air and water, as well as safe discharge and disposal of waste.
- Social rights and interests, including the rights to adequate health care, education, and housing.
- Cultural rights and interests, including the right to protection of places of cultural significance (e.g., sacred sites or burial sites).

- .71 The registrant shall disclose the following, as relevant:
- Lifecycle stages to which its practices apply, such as: pre-bid (when the registrant is considering acquisition of a site), exploration and appraisal, site development, mineral production, and during closure, decommissioning, and restoration.
 - The community rights and interests (enumerated above) specifically addressed by the practices.
 - The underlying references for its procedures, including whether they are codes, guidelines, standards, or regulations and whether they were developed by the registrant, an industry organization, a third-party organization (e.g., a non-governmental organization), a governmental agency, or some combination of these groups.
- .72 Risks and opportunities include, but are not limited to: non-technical delays, availability and development of local content, availability and access to adequate infrastructure, community actions related to resource nationalism, and challenges associated with resettlement and access to land.
- .73 The registrant shall disclose the degree to which its policies and practices are aligned with the International Finance Corporation's (IFC) [Performance Standards on Environmental and Social Sustainability](#), January 1, 2012, including specifically:
- Performance Standard 4 – Community Health, Safety, and Security
 - Performance Standard 5 – Land Acquisition and Involuntary Resettlement
 - Performance Standard 8 – Cultural Heritage
- .74 The discussion shall include how practices apply to business partners such as contractors, sub-contractors, suppliers, and joint venture partners.
- .75 The registrant should describe its efforts to eliminate or mitigate community risks and/or address community concerns, including, but not limited to:
- The use of social impact assessment (SIA) that evaluates, manages, and mitigates risks.
 - Efforts to engage with stakeholders, build consensus, and collaborate with communities.
 - “Shared” or “blended” value projects that provide quantifiable benefits to the community and the registrant.
- .76 The registrant may choose to quantify its community risks by calculating the aggregate estimated value at risk (in U.S. dollars) to its capital expenditure projects as the difference in value (in U.S. dollars) between a project free from country, regional, and/or community risks (hereafter, country risk) and the value of a project adjusted for these risks.
- This calculation should be conducted using an appropriate valuation model; variations of the Capital Asset Pricing Model (CAPM) are commonly used to assess country risk.
 - Value at risk can be calculated by applying an additional discount rate premium when calculating the net present value of a project using discounted cash flow (DCF) analysis.
 - Value at risk can be expressed as a reduction in the expected cash flows of a project due to country risk when calculating the net present value of a project using discounted cash flow (DCF) analysis.

- If a project is insured for country risks, the value at risk can be expressed as a reduction in the cash flows of a project due to the cost of insurance when calculating the net present value of a project using discounted cash flow (DCF) analysis.
- Country, regional, and/or community risks include, but are not limited to: corruption, business legal structure, political stability, regulation, resource nationalism, ethnic conflict, stability of the local market, labor force (skills) availability, resettlement and access to land, quality of access to infrastructure (e.g., ports, roads, shipping channels), and/or general license to operate.
 - These risks are likely to manifest differently at the country (national), regional (state), community (local) levels, and project levels.
 - This risk differs from sovereign risk, which is defined as the potential for a central bank or government-backed entity to willingly or unwillingly default on debt obligations, or significantly alter key economic variables such as foreign exchange rates, import ratios, and money supply.
- The registrant should identify and describe country risks specific to its projects and unique operating context.
 - This may include the identification of country, regional, and community risks and/or the discussion of specific projects.
 - This may include discussion of how the registrant has mitigated these risks through community engagement partnerships, blended value projects, etc.; the registrant shall quantify this reduction in risk according to the methods described above.
 - Discussion should be in addition to broad country risk classification (e.g., OECD Prevailing Country Risk classification, Standard & Poor's Country Risk ratings, World Economic Forum Global Competitiveness Index, etc.).
- The registrant should describe the model or approach used to value capital expenditure projects such as adjusted discount rate, expected cash flow, or other methods.

NR0302-14. Number and duration of non-technical delays

- .77 The registrant shall disclose the total number and aggregate duration (in days) of site shutdowns or project delays due to non-technical factors.
- .78 The scope includes shutdowns and project delays including, but not limited to, those resulting from pending regulatory permits or other political delays, community or stakeholder resistance or protest, and armed conflict.
- .79 The scope of disclosure excludes delays due to strikes and lockouts that are disclosed according to NR0302-20.
- .80 The registrant may choose to discuss specific delays including associated costs, root cause and corrective actions for resolved delay, and status of ongoing delays.

Security, Human Rights, and Rights of Indigenous Peoples

Description

Metals and mining companies face additional community-related risks when operating in conflict zones and in areas with weak or absent governance institutions, rule of law, and legislation to protect human rights. They also face risks when operating in areas with vulnerable communities, such as indigenous peoples. Companies using private or government security forces to protect their workers and assets may knowingly, or unknowingly, contribute to extreme cases of human rights violations, including use of excessive force. Indigenous people are often the most vulnerable sections of the population, with limited capacity to defend their unique rights and interests. Companies perceived as contributing to human rights violations or failing to account for indigenous peoples' rights may be affected due to protests, riots, or suspension of permits. They could face substantial costs related to compensation or settlement payments, and write-downs in the value of their reserves in such areas. In the absence of country laws to address such cases, several international instruments have emerged to provide guidelines for companies. These instruments include obtaining the free, prior, and informed consent of indigenous peoples for decisions affecting them. With greater awareness, several countries are also beginning to implement specific laws protecting indigenous peoples' rights, creating increasing regulatory risk for companies.

Accounting Metrics

NR0302-15. (1) Proven and (2) probable reserves in or near areas of conflict

- .81 The registrant shall disclose the amount (in metric tons) and grade (in percentage metal content) of proven reserves that are located in or near areas of active conflict.
- The registrant shall, where relevant, provide a breakdown of calculations by mineral or business unit where minerals or business units include, for example: aluminum, copper, zinc, iron ore, platinum group metals, diamonds, etc.
- .82 The registrant shall disclose the amount (in metric tons) and grade (in percentage metal content) of probable reserves that are located in or near areas of active conflict.
- The registrant shall, where relevant, provide a breakdown of calculations by mineral or business unit where minerals or business units include, for example: aluminum, copper, zinc, iron ore, platinum group metals, diamonds, etc.
- .83 Active conflict is defined according to the Uppsala Conflict Data Program (UCDP) [definition](#) as:
- A conflict, both state-based and non-state, is deemed to be active if there are at least 25 battle-related deaths per calendar year in one of the conflict's dyads.

- .84 Reserves shall be considered to be in or near an area of active conflict if it is located in the same country as the active conflict.
- If the registrant can demonstrate that a conflict is contained to a region, state, or designated area that is not proximate to its reserves then it may exclude these from the scope of disclosure.
 - If reserves are located in a country, region, or state adjacent to an active conflict and/or can be reasonably expected to be operationally impacted by the conflict then these reserves shall be included in the scope of disclosure.
- .85 Reserves are defined by the SEC [Industry Guide 7, Description of Property by Issuers Engaged or to Be Engaged in Significant Mining Operations](#):
- Reserves, as that part of a mineral deposit which could be economically and legally extracted or produced at the time of the reserve determination.
 - Proven (or measured) reserves, as reserves for which (a) quantity is computed from dimensions revealed in outcrops, trenches, workings, or drill holes; grade and/or quality are computed from the results of detailed sampling, and (b) the sites for inspection, sampling, and measurement are spaced so closely and the geographic character is so well-defined that size, shape, depth, and mineral content of reserves are well-established.
 - Probable (or indicated) reserves are reserves for which quantity and grade and/or quality are computed from information similar to that used for proven (measured) reserves, but the sites for inspection, sampling, and measurement are farther apart or are otherwise less adequately spaced. The degree of assurance, although lower than that for proven (measured) reserves, is high enough to assume continuity between points of observation.
- .86 The registrant should follow the Combined Reserves International Reporting Standards Committee (CRIRSCO) guidance for classifying ore reserves and mineral resources, including the use of a “competent person” to compile information.

NR0302-16. (1) Proven and (2) probable reserves in or near indigenous land

- .87 The registrant shall disclose the amount (in metric tons) and grade (in percentage metal content) of proven reserves that are located in or near areas that are considered to be indigenous peoples’ land.
- The registrant shall, where relevant, provide a breakdown of calculations by mineral or business unit where minerals or business units include, for example: aluminum, copper, zinc, iron ore, platinum group metals, diamonds, etc.
- .88 The registrant shall disclose the amount (in metric tons) and grade (in percentage metal content) of probable reserves that are located in or near areas that are considered to be indigenous peoples’ land.
- The registrant shall, where relevant, provide a breakdown of calculations by mineral or business unit where minerals or business units include, for example: aluminum, copper, zinc, iron ore, platinum group metals, diamonds, etc.

.89 Indigenous lands are those occupied by those who self-identify as indigenous and likely have one or more of the following characteristics based the [working definition](#) of “Indigenous Peoples” adopted by the United Nations:

- Historical continuity with pre-colonial and/or pre-settler societies
- Strong link to territories and surrounding natural resources
- Distinct social, economic, or political systems
- Distinct language, culture, and beliefs
- Form non-dominant groups of society
- Resolve to maintain and reproduce ancestral environments and systems as distinctive peoples and communities

.90 For the purposes of this disclosure, “near” is defined as within 5km of the recognized boundary of an area considered to be indigenous land.

.91 Reserves are defined by the [SEC Industry Guide 7, Description of Property by Issuers Engaged or to Be Engaged in Significant Mining Operations](#):

- Reserves, as that part of a mineral deposit which could be economically and legally extracted or produced at the time of the reserve determination.
- Proven (or measured) reserves, as reserves for which (a) quantity is computed from dimensions revealed in outcrops, trenches, workings, or drill holes; grade and/or quality are computed from the results of detailed sampling, and (b) the sites for inspection, sampling, and measurement are spaced so closely and the geographic character is so well-defined that size, shape, depth, and mineral content of reserves are well-established.
- Probable (or indicated) reserves are reserves for which quantity and grade and/or quality are computed from information similar to that used for proven (measured) reserves, but the sites for inspection, sampling, and measurement are farther apart or are otherwise less adequately spaced. The degree of assurance, although lower than that for proven (measured) reserves, is high enough to assume continuity between points of observation.

.92 The registrant should follow the Combined Reserves International Reporting Standards Committee (CRIRSCO) guidance for classifying ore reserves and mineral resources, including the use of a “competent person” to compile information.

NR0302-17. Discussion of engagement processes and due diligence practices with respect to human rights, indigenous rights, and operation in areas of conflict

.93 The registrant shall describe its due diligence practices and procedures with respect to indigenous rights of communities in which it operates or intends to operate, including:

- Upholding ILO Convention No. 169.
- Use of free, prior, and informed consent (or consultation) processes.

.94 The registrant shall describe its due diligence practices and procedures with respect to human rights, including:

- Upholding the fundamental International Labour Organization (ILO) conventions on freedom of association (No. 87), collective bargaining (No. 98), forced labor (No. 29, No. 105), child labor (No. 138, No. 182), fair wages (No. 100), and discrimination (No. 111).
- Implementation of the European Commission's "Oil and Gas Sector Guide on Implementing the UN Guiding Principles on Business and Human Rights," specifically Human Rights Due Diligence (Principle 17a-c).
- Implementation of Voluntary Principles on Security and Human Rights.

.95 The registrant shall discuss its practices and procedures while operating in zones of conflict, such as:

- Describing its approach according to the Five-Step Framework outlined in the [OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas](#).

.96 An area of conflict is located in the same country as an active conflict, or adjacent to an active conflict that can be reasonably expected to impact the registrant's operations.

.97 Active conflict is defined according to the Uppsala Conflict Data Program (UCDP) [definition](#) as:

- A conflict, both state-based and non-state, is deemed to be active if there are at least 25 battle-related deaths per calendar year in one of the conflict's dyads.

.98 The discussion shall include due diligence processes employed during all stages of project development (i.e., prior, during, and post).

.99 The discussion shall include how practices apply to business partners, such as contractors, sub-contractors, suppliers, and joint venture partners.

Workforce Health, Safety, and Well-Being

Description

Safety is critical to mining operations due to hazardous working conditions, and accidents often have the greatest impact on workers. The Metals & Mining industry has relatively high fatality rates compared to other industries. Miner fatality or injury can result from incidents that include powered haulage and machinery accidents and mine cave-ins. Poor health and safety records can result in fines and penalties, and an increase in regulatory compliance costs from more stringent oversight. A company's ability to protect employee health and safety, and to create a culture of safety and well-being among employees at all levels, can help prevent accidents, mitigating costs and operational downtime, and enhance workforce productivity.

Accounting Metrics

NR0302-18. (1) MSHA All-Incidence Rate, (2) Fatality Rate, and (3) Near Miss Frequency Rate for (a) full-time employees and (b) contract employees

- .100 For registrants whose workforce is entirely U.S.-based, the registrant shall disclose its All-Incidence Rate (AIR) and fatality rate, as calculated and reported through the Mine Safety and Health Administration's (MSHA) Form 7000-1 (as required under 30 CFR, Part 50), where incidents include:
- Fatalities, or work-related injuries resulting in death to employees on active mine property;
 - Nonfatal, Days Lost (NFDL) cases, or occupational injuries that result in loss of one or more days from the registrant's scheduled work or days of limited or restricted activity while at work;
 - No Days Lost (NDL) cases, or occurrences requiring only medical treatment (beyond first aid); that is, nonfatal-injury occurrences resulting only in loss of consciousness or medical treatment other than first aid.
- .101 For registrants whose workforce includes non-U.S.-based employees, the registrant shall calculate its AIR and fatality rate according to the MSHA [instructions](#) and [definitions](#).
- .102 The registrant shall disclose its Near Miss Frequency Rate (NMFR), where a near miss is defined as an incident in which no property or environmental damage or personal injury occurred, but where damage or personal injury easily could have occurred but for a slight circumstantial shift.
- The registrant should refer to organizations such as the National Safety Council (NSC) for guidance on implementing near-miss reporting.
 - The registrant should disclose its process for classifying, identifying, and reporting near-miss incidents.
- .103 The registrant shall disclose its AIR, fatality rate, and NMFR for each of the following categories of employee:
- Direct, full-time employees
 - Contract employees
- .104 The scope includes all employees, domestic and foreign.
- .105 Rates shall be calculated as: (statistic count / total hours worked)*200,000.

Labor Relations

Description

Metals and mining companies face inherent conflict between the need to lower the cost of labor to remain price-competitive, and to manage human resources to ensure long-term performance. Working conditions related to metal and mining operations are usually physically demanding and hazardous. Labor unions play a key role in representing workers' interests and managing collective bargaining for better wages and working conditions. At the same time, metals and mining companies often operate in areas where worker rights are not adequately protected. The nuances of both domestic and international worker concerns make management of labor relations critical for metals and mining companies. Conflict with workers can result in labor strikes and other disruptions that can delay or stop production. Work stoppages result in significant lost revenue and reputational damage. Continued labor stresses can impact the long-term profitability of the business.

Accounting Metrics

NR0302-19. Percentage of active workforce covered under collective-bargaining agreements, broken down by U.S. and foreign employees

- .106 The registrant shall indicate the percentage of U.S. employees and the percentage of foreign employees in the active workforce who are covered under collective-bargaining agreements during any part of the fiscal year, where:
- Active workforce is defined as the maximum number of unique employees employed at any time during the fiscal year.
 - U.S. employees are defined as employees that do not need a visa to work in the U.S.
 - Foreign employees are defined as employees that do need a visa to work in the U.S.

NR0302-20. Number and duration of strikes and lockouts

- .107 The registrant shall disclose the number of work stoppages and total duration, in worker days idle, of work stoppages involving 1,000 or more workers lasting one full shift or longer.
- Worker days idle is calculated as the product of days idle and number of workers involved.
- .108 The scope of disclosure includes work stoppage due to disputes between labor and management, including strikes and lockouts.
- .109 The scope of disclosure excludes work stoppages due to other non-technical reasons that are disclosed according to NR0302-14.

Note to NR0302-20

- .110 The registrant shall describe the reason for each work stoppage (as stated by labor), and the impact on production, and any corrective actions taken as a result.

Business Ethics and Payments Transparency

Description

Managing business ethics and maintaining an appropriate level of transparency in payments to governments or individuals are significant issues for the metals and mining companies. This is due to the importance of government relations to companies' ability to conduct business in this industry and to gain access to mining reserves. The emergence of several anti-corruption, anti-bribery, and payments-transparency laws and initiatives, in the U.S. and abroad, create regulatory risks. Enforcement of these could lead to significant one-time costs or higher ongoing compliance costs and even affect a company's social license to operate. Companies with significant reserves or operations in corruption-prone countries could face heightened risks. Companies are under pressure to ensure that their governance structures and business practices can address corruption and willful or unintentional participation in illegal or unethical payments or gifts to government officials or private persons.

Accounting Metrics

NR0302-21. Description of the management system for prevention of corruption and bribery throughout the value chain

- .111 The registrant shall discuss its management system and due diligence procedures for assessing and managing corruption and bribery risks internally and associated with business partners in its value chain.
 - Relevant business partners include customers, suppliers, contractors, subcontractors, and JV partners.
- .112 Relevant aspects of a management system include employee awareness programs, internal mechanisms for reporting and following up on suspected violations, anti-corruption policies, and participation in the Extractive Industry Transparency Initiative (EITI).
- .113 The registrant may choose to discuss the implementation of one or more of the following:
 - Key Organisation for Economic Co-operation and Development (OECD) [guidelines](#)
 - International Chamber of Commerce (ICC): Rules of Conduct against Extortion and Bribery
 - Transparency International: Business Principles for Countering Bribery
 - United Nations Global Compact: 10th Principle
 - World Economic Forum (WEF): Partnering Against Corruption Initiative (PACI)

NR0302-22. Production in countries that have the 20 lowest rankings in Transparency International's Corruption Perception Index

.114 The registrant shall disclose its net production from activities located in the countries with the 20 lowest rankings in Transparency International's Corruption Perception Index (CPI).

- The 20 lowest numerical ranks shall be used to generate the scope of countries; therefore, due to the fact that multiple countries share many ranks, the scope may include more than 20 countries.

.115 The registrant shall use the most current version of the CPI via Transparency International's publicly accessible [website](#).

.116 Production shall be disclosed in saleable tons of minerals.

- The registrant should, where relevant, provide a breakdown of calculations by mineral or business unit where minerals or business units may include, for example: aluminum, copper, zinc, iron ore, precious metals, diamonds, etc.

.117 The registrant may choose to provide discussion around operations that are located in countries with low rankings in the index but present low business ethics risks; the registrant may choose to provide similar discussion for operations located in countries that do not have one of the 20 lowest rankings in the index but that present unique or high business ethics risks.

SUSTAINABILITY ACCOUNTING STANDARDS BOARD®

75 Broadway, Suite 202
San Francisco, CA 94111
415.830.9220
info@sasb.org

www.sasb.org