

Integrating Financial and Sustainability Reporting at Teck

by

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Abstract

The expectations for companies to disclose information are undergoing a transformation. Traditional financial disclosure practices are no longer sufficient to address increasing pressures to provide information related to sustainability practices and non-financial risks. The sustainability reporting landscape is rapidly evolving, leaving companies striving to keep abreast of changes and continually meet the shifting expectations of stakeholders in a highly fragmented and uncertain sustainability reporting landscape.

Quite recently, a movement has begun towards integration of financial and sustainability-related disclosures into a more singular, overarching and holistic view of how a company creates value. This paper explores one company's experiences in sustainability reporting as they consider moving down the path towards integrated reporting.

The paper contains a summary of the sustainability reporting landscape from the perspective of a global mining company, explores the practical challenges experienced to date, and concludes with recommendations aimed at preparing the company for the future.

Keywords: sustainability; reporting; integrated reporting; GRI; ICMM; mining; financial disclosures

Dedication

To two people who have made a profound difference in my life: to my wife Robyn, my heartfelt gratitude for making the journey with me. To my father George Kniel, I hope that this dedication might provide to others a glimpse of your powerful mind, your incredible capacity to analyze and teach yourself new things, and the raw talent that fate and circumstances overlooked.

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List of Acronyms

AGM	Annual General Meeting
CDP	Carbon Disclosure Project
CEO	Chief Executive Officer
CGR	Community and Government Relations
DJSI	Dow Jones Sustainability Index
EDGAR	Electronic Data Gathering, Analysis, and Retrieval system
ESG	Environmental, Social and Governance
FTE	Full-time equivalent
GAAP	Generally Accepted Accounting Principles
GHG	Greenhouse gas
GIS	Geographical Information System
GRI	Global Reporting Initiative
HFM	Hyperion Financial Management
HSEC	Health, Safety, Environment and Community
IASB	International Accounting Standards Board
ICMM	International Council on Mining and Metals
IFRS	International Financial Reporting Standards
IIRC	International Integrated Reporting Council
IS	Information Systems
LIMS	Laboratory Information Management System
MAC	Mining Association of Canada
MD&A	Management's Discussion and Analysis
NGO	Non-governmental organization
PDH	Process Data Historian
SEA	Sustainability and External Affairs
SEDAR	System for Electronic Document Analysis and Retrieval
SME	Subject matter expert
SRI	Socially Responsible Investing
TSM	Towards Sustainable Mining

Glossary

Critical path	The sequence of activities in a project that collectively lead to the longest overall duration for that project. The duration of critical path activities, taken in aggregate, dictate the length of the project as a whole, implying that increasing or decreasing the duration of a single critical path activity has the equivalent impact on the overall project duration.
EDGAR	An electronic system that performs automated collection, validation, indexing, acceptance, and forwarding of submissions by companies and others who are required by law to file forms with the U.S. Securities and Exchange Commission (SEC). (U.S. Securities and Exchange Commission, 2015b)
Hyperion Financial Management	A web-based Oracle-based enterprise software application used by Teck to consolidate financial data housed in several different general ledger accounting software applications.
SEDAR	An electronic system developed for the Canadian Securities Administrators to: <ul style="list-style-type: none">• facilitate the electronic filing of securities information as required by Canadian Securities Administrator;• allow for the public dissemination of Canadian securities information collected in the securities filing process; and• provide electronic communication between electronic filers, agents and the Canadian Securities Administrator. (Canadian Securities Administrators, 2015)
StreamLine	A SharePoint-based purpose-built enterprise application used for the collection of reporting data from across Teck in either monthly, quarterly or annual data campaigns.
Teck	Teck Resources Limited, a diversified resource company with business units focused on steelmaking coal, copper, zinc and energy. Headquartered in Vancouver B.C., Teck owns or has an interest in 13 mines, one large metallurgical complex, a wind power facility and several major development projects in Canada, the United States, Chile and Peru.

Executive Summary

The expectations for companies to disclose information are undergoing a transformation. Traditional financial disclosure practices are no longer sufficient to address increasing pressures to provide information related to sustainability practices and non-financial risks. The sustainability reporting landscape is rapidly evolving, leaving companies striving to keep abreast of changes and continually meet the shifting expectations of stakeholders in a highly fragmented and uncertain sustainability reporting landscape.

Quite recently, a movement has begun towards integration of financial and sustainability-related disclosures into a more singular, overarching and holistic view of how a company creates value. This paper explores Teck's experiences in sustainability reporting as they consider moving down the path towards integrated reporting.

The primary vehicle for Teck's disclosure of its sustainability performance is through its annual Sustainability Report. By contrasting mechanisms for producing that report and comparable mechanisms for the company's Financial Statements and Annual Report, opportunities for streamlining the production of the Sustainability Report have been identified. Although it is expected that by application of additional resources the release date for the Sustainability Report can be brought forward to a degree, given a number of constraints related to reporting timelines and in light of fundamental differences between the nature of the information upon which the two types of reports are based, it is not envisaged that release dates for these two reports can readily be made to coincide in the near future.

Near-term improvements to the manner in which the Sustainability Report is created are nevertheless only stepping stones along the path towards integrated reporting. Some significant challenges will need to be addressed along the way, namely:

- the ongoing evolution and continuing fragmentation of expectations in the sustainability reporting landscape, which will pressure the company to be more discerning in choosing the reporting mechanisms in which to participate;

- the need to align internal data and reporting systems and resources (at corporate and operating locations) with external reporting demands, recognizing that the rate of change of stakeholder expectations may be far faster than the company's ability to respond with the necessary adaptations to its data and reporting infrastructure and practices; and
- the need to create internal alignment regarding how the company ascribes value to non-tangible assets and the various forms of capital that underpin the International Integrated Reporting Framework of the IIRC.

An integrated report will ultimately be a result of integrated and cross-functional thinking within an organization, which in turn is facilitated by an organization that functions in an integrated fashion. While it is clear that application of additional resources and some changes in how the Sustainability Report is generated might result in some benefits regarding closer alignment of reporting schedules, it is also clear that the more fundamental changes implied by the IIRC framework may invoke more far-reaching changes in how Teck organizes and resources itself to coordinate and carry out the reporting activity. These more fundamental changes will require clear direction and leadership from the most senior levels of the organization, may require a re-alignment of resources within the organization, and will require application of change management practices at many levels of the organization. Such changes should also be expected to require a number of years of unrelenting, focussed effort to successfully move the organization down this path.

Chapter 1. Introduction

Companies are well versed in disclosures of financial information to expectant stakeholders, and over several decades, have evolved organizational structures, practices and data systems to meet these expectations.

Much more recently, a plethora of sustainability-related reporting mechanisms have emerged, each with its own purpose, audience and characteristics. Companies face challenges not only in identifying and deciding upon the reporting mechanisms in which to participate, but also in fulfilling the expectations associated with each of these largely independent mechanisms.

Within the last three years, a global dialogue has emerged regarding a desire amongst stakeholders for the integration of financial and sustainability-related disclosures into one, simplified means for disclosure in order to better and more holistically inform stakeholder's decisions. As part of this dialogue, the International Integrated Reporting Council (IIRC) published in late 2013 its integrated reporting framework. This provided yet another potential reporting mechanism and a new direction into an already fragmented sustainability reporting landscape.

Since 2001, Teck has used its annual Sustainability Report as the primary vehicle for informing stakeholders of its sustainability- related performance and activities. In that time, Teck has been both an active participant and a witness to the continuing evolution of sustainability reporting expectations. The purpose of this paper is to take stock of the current status of sustainability reporting at Teck and contrast its internal practices for creating such reports with its corresponding practices for financial reporting, to identify opportunities to improve the former. At the same time, the paper aims to identify near term, medium term and longer term actions that the company can take to adapt to what is expected to be a sustainability reporting landscape that continues to evolve for the foreseeable future.

Chapter 2. The Reporting Landscape

This section outlines the basis and drivers for disclosure of company performance information to external stakeholders, including shareholders, regulators and members of the public. The emphasis in this section is placed upon sustainability reporting and disclosures, which in comparison to financial disclosure practices are a relatively new set of expectations for companies to address. The latter portions of this section provide an overview of some of the sustainability reporting mechanisms of particular importance to Teck.

For the purposes of this paper, the term ‘reporting’ is used to represent outwardly-directed disclosure of company information to external parties. Other than circumstances when routine internal management reporting practices impact upon external company disclosures, the former is excluded from the scope of this paper.

2.1. Financial Reporting

Financial reporting and disclosure practices have been very well established in public companies and solidly entrenched in the expectations of shareholders and within national and international legal frameworks for several decades. The primary purpose of annual financial reporting is to disclose company financial information to existing and prospective shareholders in a manner that is consistent, straightforward, and succinct (Ernst & Young, 2008). Two commonly used reporting frameworks are jurisdiction-specific Generally Accepted Accounting Principles (GAAP) and the International Financial Reporting Standards (IFRS). The company Annual Report to Shareholders is a primary vehicle for financial disclosure by public companies, and subject to many detailed legal requirements related to its content and publication (U.S. Securities and Exchange Commission, 2015a).

2.2. Sustainability Reporting

2.2.1. History

Unlike financial disclosure, corporate non-financial reporting is a relatively recent phenomenon. As recently as 1993, fewer than 100 such reports were produced globally. By 2003, the number of companies producing annual non-financial reports had grown to over 1,500 globally, covering a wide spectrum of content. Of these reports, roughly 56% were focussed on a single topic (e.g. Environment or Social performance), a further 30% included a narrow mix of selected topics (e.g. Environment, Health and Safety) and only 14% of these (or approximately 200 reports) addressed a broader spectrum of environmental and social performance information under the banner of 'sustainability reporting' (Association of Chartered Certified Accountants, 2004). By 2011, the number of companies publishing such broad-spectrum sustainability reports annually had grown to more than three thousand (Ernst & Young and Centre for Corporate Citizenship, 2014).

2.2.2. Drivers

Several reasons for the publication of sustainability reports by companies have been put forward. Research published in 2014 (Ernst & Young and Centre for Corporate Citizenship) suggests that the primary motivations for sustainability reporting by companies include:

- Improved transparency with (and addressing the expectations of) stakeholders;
- Strategic advantage through differentiation from competitors; and
- Improved risk management.

The same authors suggest that the benefits of transparency realized through sustainability reporting include:

- Improved access to sources of capital;
- Innovation, waste reduction and efficiency;
- Enhanced reputation amongst stakeholders; and

- Strengthened employee loyalty and recruitment.

The same report also contrasts those companies which act to improve sustainability performance but do not produce sustainability reports with companies that both act and report on the actions and corresponding outcomes, stating:

“Many corporations, after all, engage in sustainability activities without issuing reports. In general, those companies that report appear on sustainability rankings and obtain higher places within those rankings than do non-reporters. Though improved reputation is reported to be a significant positive outcome of sustainability reporting, it was not found to be a primary reason that companies prepare reports.”

The preceding statement regarding an enhanced focus on sustainability rankings reflects an even more recent development in the reporting landscape. Socially Responsible Investing (SRI), sometimes referred to as ‘ethical investing’, may involve investors making investments in companies on the basis of values such as environmental protection or human rights; practicing shareholder advocacy to proactively influence corporate decision making to align with a similar set of values; or investing in communities or constituencies under-represented in more traditional financial institutions or instruments (Chamberlain, 2013). Chamberlain states:

“The SRI approach is to invest in stocks and bonds from those companies and counties or municipalities that promote certain actions, or eschew those which participate in offending actions. It is not unlike the carrot and the stick premise; you reward those that you agree with by investing in their companies (the carrot) and avoid buying shares of those companies that offend your core values (the stick).”

As the expectations of stakeholders continue to evolve, SRI is becoming more ‘main stream’. Sustainability-related reporting expectations are now being included in the legal framework of countries and securities exchanges, and as of 2012, governments or exchanges in 33 countries had either mandated or encouraged some form of sustainability reporting. On a volume basis, “approximately US\$3.74 trillion in assets are administered by managers who systematically evaluate and screen for sustainability practices when determining their portfolios.” (Ernst & Young and Centre for Corporate Citizenship, 2014, p. 10 - 11)

2.2.3. Sustainability reporting mechanisms

Unlike financial reporting, where the expectations for making financial disclosures (and providing independent assurance of these statements) are well developed, widely recognized, stable and relatively few in number (e.g. GAAP and IFRS), the sustainability reporting landscape is very fragmented and continues to shift. This section highlights several sustainability reporting mechanisms of relevance to Teck, and in subsequent sections, further detail is provided on several of particular importance to Teck.

Table 2.2.3.1 Outline of sustainability reporting mechanisms relevant to Teck

Type of mechanism	Questionnaire / Analyst Evaluation / Comparative Indices	
How it works	Analyst evaluations and relative ranking, with upper tier of respondents being placed on 'index', or published as a ranked set	
Name	Organization	Description
Dow Jones Sustainability Indices (DJSI) - several groupings	RobecoSAM AG Dow Jones	Detailed online questionnaire containing approximately 120 questions spanning a wide range of topics including governance, environmental performance, risk management and social performance. Responses are analyzed and the upper tier of respondents placed on an Index comprised of similarly performing peers companies.
Climate Disclosure Leadership Index (CDLI) Climate Performance Leadership Index (CPLI)	CDP	Three detailed online questionnaires, one centered on energy and greenhouse gas emissions, another on water use and water quality, and the third on supply chain management. Carbon-related data informs place on Indices, water and supply chain data is compiled and published.
Global 100	Corporate Knights	Based on previously disclosed sustainability data (no separate questionnaire requirement for companies). Twelve quantitative performance indicators, weighted against company revenue.
Top 50 Socially Responsible Companies	Sustainalytics	A Canadian compilation utilizing publically available information and featured in Maclean's magazine and reported by industry sector

Type of mechanism	Reporting Standards (including mandatory requirements and a verification or certification mechanism)
How it works	Published standards and associated supplementary documents. Verified compliance with the standard is required either by law or in order to use the trademark.

Name	Organization	Description
Sustainability Accounting Standard	Sustainability Accounting Standards Board	For use by publically-listed companies in the U.S. Designed for disclosure in mandatory filings to the Securities Exchange Commission.
Towards Sustainable Mining	Mining Association of Canada	A set of protocols on specific topics intended to drive performance improvements of member companies. Annual self-assessments against the protocols are supplemented by triennial external verifications of self-assessed scores.
AA1000 series of standards	AccountAbility	Voluntary standards. Require third-party verification to claim conformance with standards and use trademark.

Type of mechanism	Reporting guidelines and frameworks
How it works	Voluntary adherence by companies. Legitimacy of and recognition for the framework or guideline depends on the number of adopters.

Name	Organization	Description
Global Reporting Initiative (GRI)	The Global Reporting Initiative	A set of detailed guidelines organized around more than 100 indicators, with supplemental reporting content by sector.
International Integrated Reporting Council (IIRC) Integrated Reporting Framework	IIRC	A draft framework for the disclosure of financial and sustainability information in one, unified report format.

Type of mechanism	Sustainability guidelines and frameworks (focus on company actions rather than reporting)
How it works	Voluntary adoption by companies.

Name	Organization	Description
United Nations Global Compact (UNGC)	United Nations	A voluntary initiative of member companies to promote action in sustainability. Members commit to following ten charter principles.
ISO26000 - Guidance on Social Responsibility	International Organization for Standardization	A guideline document (not for purposes of company certification) that outlines practices for integrating social responsibility throughout an organization.

The previous table highlights both the variety of both existing reporting mechanisms and the spectrum of organizations involved, with each attempting to ‘stake a claim’ in the reporting landscape and promote or entrench their own version of reporting requirements. This creates a market-like competitive atmosphere between reporting mechanisms, and provides an impetus for the continued dynamic nature of the reporting landscape (Davies, 2013). It also leads to various competing demands on the finite resources of reporting companies. In the case of Teck, sustainability has begun to coalesce towards a smaller set of reporting requirements outlined in the following section.

2.2.4. The Teck context for sustainability reporting

This section provides more detail and context on four sustainability reporting mechanisms of primary significance for Teck, selected on the basis of:

- reputational standing both inside and outside the company; and
- extent of company resources employed to fulfill the reporting requirements.

Global Reporting Initiative (GRI)

The Global Reporting Initiative (GRI) is the most widely recognized and utilized framework for sustainability reporting in the world. Ernst and Young and the Centre for Corporate Citizenship (2014) report that in a 2013 survey of more than 3000 reporting companies, 69% of reporters either based their report directly on the GRI Guidelines (i.e. produced reports ‘in conformance with’ the Guidelines) or utilized the Guidelines in the creation of their report.

The GRI was founded in 1997 in the United States by a collection of US-based environmental NGOs and the United Nations Environment Program (UNEP). The initial environmentally-focussed mandate of the group was soon expanded to include social, economic and governance issues. A multi-stakeholder Steering Committee released a Sustainability Reporting Framework and the first version of the GRI Reporting Guidelines in 2000. The second generation of the Reporting Guidelines was released in 2002, with a third version (G3) released in 2006. In 2008, GRI began to release sector-specific supplements to the Reporting Guidelines, and in 2011, an updated G3.1 was released

that included expanded guidance on reporting gender, community and human rights-related performance. The current G4 version of the Reporting Guidelines was released in 2013 (GRI, 2015). A transition period of two reporting cycles (i.e. two years) after the release of a new version is provided to reporters to allow them to align their reporting practices with changes to the Guideline (GRI, 2014).

The G4 version of the GRI Reporting Guideline (GRI, 2013a; GRI, 2013b) is structured around Economic, Environmental and Social categories, with each category containing numerous pre-defined aspects under each category - four economic, twelve environmental and thirty social, with the latter group further organized under four sub-categories: Labor Practices, Human Rights, Society and Product Responsibility. Each defined aspect is characterized by one or more reporting indicators, resulting in 157 such indicators being defined across the categories and subcategories. Approximately 1000 individual information requirements are imbedded within this set of 157 indicators. The selection by reporters of what content to present and which subset of indicators and individual requirements to address in company disclosures is defined within processes laid out in the Guideline, with a baseline set of 'Standard Disclosures' applicable for all reporters, supplemented by further additional disclosures based upon:

- a materiality process to define relevant aspects for purposes of the report, based on the nature of the enterprise;
- whether the reporter has selected a 'core' or 'comprehensive' reporting model, with the latter implying more extensive disclosures of indicators associated with material aspects; and
- additional disclosure requirements defined within relevant industry-specific sector disclosure requirements.

ICMM membership and the GRI

Teck has been referencing the GRI Reporting Guidelines for its sustainability reports since it began producing such reports in 2001, and has been conforming to this Guideline since publication of its 2005 report. Teck is a member of the International Council on Mining and Metals (ICMM), which in May 2008 committed its membership to producing an annual sustainability report in accordance with the GRI Guidelines. In 2013, following the release of the updated GRI G4 Reporting Guidelines, ICMM

members reaffirmed this commitment, opting for the 'core' reporting model under the GRI G4 Guideline (ICMM, 2015a).

The initial ICMM commitment to GRI in 2008 contained an important additional component relating to independent, third-party assurance of a member's annual sustainability report. From the ICMM website:

“Since 2008, ICMM members have been required to obtain independent third party assurance of their sustainability performance. This means an independent auditor must review and assess the quality of their reports, systems and processes in line with ICMM's Assurance Procedure.

ICMM's Assurance Procedure addresses the following five aspects which ICMM members are committed to gaining assurance against:

- 1) the alignment of the member company's sustainability policies to ICMM's 10 Sustainable Development (SD) Principles and any mandatory requirements set out in ICMM Position Statements
- 2) the company's material SD risks and opportunities based on its own review of the business and the views and expectations of its stakeholders
- 3) the existence and status of implementation of systems and approaches that the company is using to manage the identified material SD risks and opportunities
- 4) the company's reported performance during the given period for a selection of identified material SD risks and opportunities
- 5) the company's self-declared application level of the Global Reporting Initiative's G4 Sustainability Reporting Guidelines.

The Assurance Procedure was designed to be compatible with member companies' assurance of their own sustainability reports: in practice, most members are likely to assure their sustainability reports and any ICMM-specific assurance requirements in an integrated manner.” (ICMM, 2015b)

The ICMM Assurance procedure, while inclusive of evaluating conformance to the GRI Reporting Guideline (Subject Matter 5 above), goes well beyond evaluation of conformance to the GRI Guidelines and into the realm of evaluating a member company's internal sustainability and risk management practices.

Teck's annual sustainability report is aligned with the GRI Reporting Guideline and is the primary vehicle for its public disclosures on sustainability matters. Other sustainability reporting mechanisms such as the Dow Jones Sustainability Index or the Carbon Disclosure Project questionnaires typically rely upon or utilize to some degree information compiled for the purposes of generating the company's annual sustainability report.

Dow Jones Sustainability Index (DJSI)

The Dow Jones Sustainability Index (DJSI) was launched in September of 1999 (SAM Group, 2002). Currently, Dow Jones contracts RobecoSAM, an investment specialist focused on sustainability investing, to compile the DJSI. The DJSI tracks the performance of global sustainability leaders through an annual assessment of the world's 2,500 largest public companies (RobecoSAM, 2014). Among other factors, it measures management practices surrounding economic, environmental and social criteria (Teck, 2014). The top 10% of each industry worldwide are included in the DJSI World Index, and the top 20% of each industry in North America are included in the DJSI NA Index. Since 2008, Teck has been included in the DJSI NA Index, and since 2010, Teck has also been included in the DJSI World Index (Teck, 2015a).

To participate in this form of sustainability reporting, Teck and other selected companies are invited to complete an on-line questionnaire structured around economic (36 questions), environmental (44) and social (47) dimensions (RobecoSAM, 2015). Responses to the questionnaire typically involve a restatement of previously disclosed, publically available information from the Teck sustainability report, but also require disclosure of additional internal documents, specifics of performance against goals, and supplemental examples and case studies to be provided. Each question typically requires a detailed response and supporting documentation. Information provided in response to on-line questionnaires is not made publically available. The evaluation of responses and compilation of relative company rankings and position on an Index follows RobecoSAM's proprietary Corporate Sustainability Assessment (CSA) methodology. While the details of the evaluation methodology are not divulged to reporting companies, RobecoSAM (2013) states that:

“Each year, over 3,000 publicly traded companies, including 800 companies in emerging markets, are invited to participate in the CSA. Companies are evaluated based on a range of material non-financial criteria that have been and are developed over time. The industry-specific questionnaires feature between 80-120 questions focusing on economic, environmental and social factors that are relevant for the companies’ success and are under-researched in conventional financial analysis. The CSA comprises an in-depth analysis of the world’s largest companies based on economic, environmental and social criteria, such as corporate governance, labor practices and environmental policies, with a special focus on industry-specific risks and opportunities companies face.”

In recent years, Teck’s practice in completing the DJSI questionnaire has been to delay submission of the questionnaire to the latest possible date (typically in the last week of June of any calendar year) and precede this by releasing the annual sustainability report so that references to annual sustainability report content can be used in responding to DJSI questions. This practice minimizes duplication of effort and also avoids possible discrepancies between the two regarding the content of the information disclosed.

Carbon Disclosure Project (CDP)

The Carbon Disclosure Project (CDP) is an independent not-for-profit organization based in the United Kingdom. The CDP claims to hold the largest collection of self-reported climate-change and water data in the world, and aims to:

“use the power of measurement and information disclosure to improve the management of environmental risk by leveraging market forces including shareholders, customers and governments. CDP has incentivized thousands of companies and cities across the world’s largest economies to measure and disclose their environmental information.” (CDP, 2015)

The CDP issues questionnaires annually on behalf of 822 institutional investor signatories with a combined \$95 trillion in assets. In 2014, more than 11,000 companies globally were asked to complete CDP questionnaires spanning five domains: climate change, water, supply chain, cities and forests. The climate change component of the CDP is the oldest and most well developed, with nearly 2000 companies providing responses to the climate change questionnaire for the 2014 reporting year. Unlike responses to the annual DJSI questionnaire, information provided via CDP questionnaire

responses is available to the public. Questionnaire responses are evaluated and ranked via a methodology that is provided to the respondents. The top ranked 10% of the respondent group is placed on the Climate Leadership Disclosure Index, and those companies whose climate change performance places them in the top tier are listed on the Climate Performance Leadership Index. Teck has responded to the CDP climate change disclosure request since 2006. In 2014, Teck placed on the Canadian Climate Leadership Disclosure Index for the third successive year, and was placed on the global Climate Performance Leadership Index for the first time, making Teck one of only 187 companies worldwide to be recognized in this way. More recently, Teck has begun to respond to the CDP water disclosure request, but the questionnaire itself is not as mature as the corresponding climate questionnaire, and CDP has yet to extend the index approach used for carbon disclosures to water data (Adachi, 2015).

The CDP climate questionnaire is structured under three modules: Management, Climate Risks and Opportunities, and GHG and Energy performance. Each module is comprised of several sections, and each section contains a series of questions. The content of the Management module overlaps to a large degree with portions of the GRI Guidelines and DJSI questions. The GHG and Energy performance module seeks disclosure of more detailed performance information than required by either the GRI Guidelines or the DJSI questionnaire, but as such data is also required under legal reporting requirements within many jurisdictions in which Teck operates, it is available for CDP reporting (Adachi, 2015). Like the DJSI questionnaire, the submission date for the CDP disclosure requests is late June, so as for reasons discussed previously regarding DJSI, the release date of the annual sustainability report targets a date that precedes the questionnaire submission date.

Towards Sustainable Mining (TSM)

Towards Sustainable Mining (TSM) is an initiative of the Mining Association of Canada (MAC). First launched in 2004, the program is intended to both enhance the reputation and improve the sustainability performance of its member companies. The program is structured into seven content modules: Tailings management, Crisis management, Energy and GHG emissions management, Aboriginal and Community Outreach, Biodiversity Conservation management, Safety and Health and Mine Closure

(Mining Association of Canada, 2015). Each of these modules, with the exception of mine closure, has a corresponding reporting protocol comprised of a number of indicators, with a scoring rubric defined for each individual indicator. These reporting protocols are publically available on the MAC website. The program (which is a condition of membership of MAC member companies) requires each Canadian facility of member companies to self-evaluate against each protocol and indicator, and report the letter score to MAC, where it is compiled and published by MAC in its annual TSM Progress Report.

Teck has been involved in TSM since its inception, and in recent years has demonstrated its leadership position by winning TSM Leadership Awards at four of its Canadian facilities in the last three years. These Leadership awards are given to facilities that have undergone independent, external verification during the year of the award and have verified scores in the upper range of the scoring rubric across all reporting protocols and for all indicators within each protocol.

The nature of sustainability reporting under TSM is much different than for the other reporting mechanisms described previously, for several reasons. Unlike the GRI Guidelines, DJSI or CDP, TSM places an almost exclusive emphasis on management practices rather than performance outcomes, and on facility-level rather than company-level reporting. Also, only letter-grade scores are reported, with no further detailed disclosure of performance information. Unlike company reporting via the GRI Guidelines, DJSI or CDP, the disclosure of TSM information is channeled through the mining industry association, and not released by the reporting company itself. Furthermore, as a means of ensuring the continued integrity of the reported scores, a TSM-specific external verification process has been included as part of the program, with individual reporting facilities being subjected to independent verification of TSM scores every three years. While the company resources to satisfy TSM reporting requirements are substantial, due to the very different nature of TSM and given its emphasis on discreet, facility-level reporting, it is outlined here for completeness but not considered further in the remainder of this paper.

2.3. The trend towards Integrated Reporting

Very recently, a move to transform the nature of company disclosure has taken root. As recently as December 2013, the International Integrated Reporting Council (IIRC) released a first version of the International Integrated Reporting Framework. According to the IIRC website:

“The IIRC’s vision is to align capital allocation and corporate behaviour to wider goals of financial stability and sustainable development through the cycle of integrated reporting and thinking (IIRC, 2015).”

Ernst and Young (2014) state that “Integrated reporting is a new concept ... created to better articulate the broader range of metrics that contribute to long-term value and the role organizations play in society. Central to the approach is the view that today value is increasingly shaped by factors such as reliance on the environment, social reputation, human capital skills and others. This value creation concept is the backbone of integrated reporting”

The aim of integrated reporting is to change the corporate reporting model from the duality of financial-sustainability reporting to a more singular and holistic disclosure of company valuation, based on the premise that (IIRC, 2013):

- an organization exists within a landscape comprised of six interdependent forms of capital (financial, manufactured, intellectual, human, social and relationship, and natural capital);
- the capitals are stocks of value that are increased, decreased or transformed through the activities and outputs of the organization;
- the ability of an organization to create value for itself enables financial returns to the providers of financial capital. This is interrelated with the value the organization creates for stakeholders and society at large.

The purpose of integrated reporting is to explain the manner in which the organization interacts with the external environment and the various forms of capital to create value over the short, medium and long term. When the organization’s activities, interactions or relationships are material to the organization's ability to create value for itself, they are included in the integrated report.

This section outlines some of the impetus for and barriers to integrated reporting for an organization such as Teck.

2.3.1. Drivers

External drivers

Shareholders and other external parties who rely on company reports and disclosures in order to make assessments and decisions are presented with several difficulties under the current reporting paradigms. These include:

- the sheer volume and complexity of available information, particularly when financial and sustainability-related information for a company is disaggregated across a variety of reports and disclosure statements;
- the lack of a common framework (and therefore lack of consistency) in the narrative component of reports between businesses (KPMG, 2011);
- the tendency of financial reports to focus on historical earnings performance, with less information available regarding the longer term, value creating prospects of the business. “Said another way, the financials may tell you how much money the company made, but not necessarily how the company makes money. And more importantly, whether the current year earnings provide a long term sustainable proposition for value creation.” (KPMG, 2014);
- the tendency of corporate sustainability reports to be prepared in isolation from the rest of the business, and absent of a line-of sight to the part that sustainability performance plays in the business strategy and in value creation (KPMG, 2011);
- the growing importance of intangible assets in the valuation of companies. Ernst and Young (2014) report that intangible assets have gone from accounting for just 17% of market value in 1975 to 80% by 2010 (based on the S&P 500);

These factors drive a desire for company reports that provide more succinct, relevant and holistic perspectives to better inform decision making.

Internal drivers

For companies, the drivers pushing them towards integrated reporting relate to addressing shareholder and other stakeholder concerns as outlined in the previous section, but additional drivers include:

- the need to use internal reporting resources efficiently, and minimize the duplication of effort involved in generating and releasing multiple reports speaking to different facets of the company's business activities;
- related to the above, a desire to reduce the reporting burden on companies and produce fewer reports, in part to mitigate the logistical challenge of preparing and releasing several different types of reports within a short period of time; and
- the necessity of avoiding contradictory disclosures of information pertaining to the same topics. The need to reconcile the content of related statements between different reports is an artefact of publishing multiple reports touching on overlapping topics within the same reporting periods, and adds to the duplication of effort mentioned above.

2.3.2. Barriers

While there exists a series of drivers pushing towards a more consolidated and holistic approach to company reporting, there also exists a set of factors which inhibit this tendency. Such barriers are outlined in this section.

External Barriers

A number of external factors naturally resist a move towards more consolidated, integrated reporting. One such factor is the existence of legal requirements pertaining to reporting, which vary by jurisdiction and for which there is little impetus to harmonize. Also, the fragmentation of the sustainability reporting landscape as outlined previously is driven by two underlying and complementary forces. First, information for sustainability reporting is rooted in a variety of scientific and social disciplines, the knowledge base of which is constantly growing, evolving and becoming increasingly sophisticated and complex. As the knowledge in these respective disciplines expands, so the information requirements in each area also increase in number and complexity. Secondly, the sustainability reporting landscape is market-like in the sense that there are various organizations attempting to promote or entrench their own version of reporting requirements to satisfy their particular information needs. Regardless of their relative merits, each such organization has a vested self-interest in the success of their own particular reporting paradigm, and so 'new entrants' to the reporting landscape such as the IIRC will have to either 'compete with' or partner with more established reporting organizations in order to further their own reporting agendas. In the case of the IIRC, it is

apparent that they have adopted a partnership approach, as a Corporate Reporting Dialogue initiative has been established “to respond to market calls for greater coherence, consistency and comparability between corporate reporting frameworks, standards and related requirements.” This initiative lists as its participants the IIRC, GRI, IFRS, CDP, ISO and several other global organizations as participants (Corporate Reporting Dialogue, 2015)

Internal Barriers

This section outlines several factors within companies that can serve as impediments to the willingness or capacity of a company to produce an integrated company report.

Organizational and conceptual ‘silos’

According to KPMG (2011), integrated reporting is about more than the physical integration of different corporate reporting components, and requires the alignment of business reporting with business strategy, presenting an opportunity to demonstrate the linkage between sustainability performance and business value. This in turn implies that reporting companies recognize the distinction between reporting on Sustainability and reporting on the sustainability of the business. To reach this point, KPMG (2011) suggests that sustainability reporting “needs to move away from its specialist roots, and become like any other aspect of operational reporting. Reports written by operations directors with specialist support will reflect business objectives better than those written by Corporate Responsibility specialists.”

At its core, integrated reporting will be a by-product of integrated and cross-functional thinking within an organization. The need to consider the value proposition across several different forms of capital will force companies to challenge the traditional norms and practices by which value is measured, and therefore requires cross-departmental collaboration and alignment. KPMG (2014) states that “applying Integrated Reporting principles to identify and assess a consensus view of the material issues requires ‘integrated thinking’ through involvement of all relevant disciplines in the business. Having effectively identified material issues the report needs to link these to the strategic response and in turn address the performance and prospects against the

strategy. Organisations with healthy risk management processes, well-articulated strategies and robust performance measurement systems tend to find it easier to achieve concise reporting. The bloat observed in some reports is often indicative of the lack of consensus and focus within the business on what the really important issues and initiatives are.” Both Ernst and Young (2014) and KPMG (2014) stress the importance of senior management buy-in and alignment for the undertaking.

Difficulty in valuing intangible assets

The ‘six capitals’ conceptual model upon which the IIRC’s Integrated Reporting Framework are based imply that value grows or diminishes, ebbs or flows between the forms of capital as a result of company activities, and thus that these forms of capital are somehow comparable for the purposes of the report. However, Ernst and Young (2014) speak to the difficulties of monetizing intangibles:

“There are challenges to overcome when measuring and monetizing value. For instance, a lack of one global monetization guideline limits consistency and comparability of monetized outcomes. Secondly, monetizing externalities poses a challenge as it’s heavily based on assumptions. Additionally, in some regions, there may be limitations on what can be disclosed in terms of monetized value within an integrated report. Finally, revealing excessive detail regarding monetized value can be seen as a risk.”

Any company attempting to follow the IIRC Framework must by necessity grapple with and resolve to its own satisfaction such issues and its own methods for valuing intangibles for the purpose of its reporting and disclosures.

Data and information systems and architecture

The ability of companies to report in a meaningful way in either financial or sustainability realms is a function of the availability and quality of the underlying information upon which the report is based. Such reliance becomes even more acute for companies attempting to construct integrated reports, where data from various and possibly disparate sources must be considered in a comprehensive and holistic way.

Financial data typically utilizes a single measurement unit (albeit in different currencies) and the Information System (IS) data systems and architecture for

management accounting and financial reporting are typically well established and usually compatible to the point that data can be transferred from one system to another in automated fashion to avoid double-handling and transcription errors.

The data set for sustainability reporting is considerably more complex than financial data, with many different forms of data, different units of measurement and different measurement periods (for example, kW-h as a unit of power consumption, m³/s water flow, hectares per year of reclamation area.) Also, such data is often housed on complex, interlinked IS infrastructure, with much of that data infrastructure having been established to serve a variety of internal operational and management needs. Updating or modifying such data architecture in response to shifting external demands for information poses organizational challenges in terms of time, effort and resources, particularly if the external reporting demands account for a relatively small portion of the data usage. KPMG (2011) states “the underlying quality of information is a particular challenge for what is still a relatively new area of reporting. Developing systems, processes, and controls to ensure the accuracy and completeness of non-financial information streams are central to the effective reporting (and management) of the issues. This cannot be achieved immediately but there is a clear opportunity for companies to begin to address this.”

Time lag and IS constraints in a shifting reporting landscape

As has been discussed previously, there are many different sustainability reporting mechanisms, and the landscape continues to shift. This fragmented and dynamic landscape is itself an impediment on a company’s ability to respond and report in a timely fashion. This impediment in turn acts as a barrier to effective integrated reporting, which requires the consideration of both financial and sustainability data in a cohesive, holistic and timely fashion. Using the GRI Reporting Guidelines as an example, the recent shift from GRI G3.1 to GRI G4 in reporting requirements and the corresponding shift in emphasis to a report based on materiality has a number of repercussions:

- There is a significant and inescapable time lag between the date that a new reporting requirement becomes known to a global organization and the time at which that organization is capable of collecting meaningful data to address

that requirement. For example, in order for a company to begin to collect data in January of a given calendar year (for purposes of annual report publication during the following year), the company must have had some months of advance preparation to not only communicate the requirements to relevant parts of the organization, but also reconfigure IS data systems and architecture to enable the appropriate data to be captured. Given the level of effort and time required for data system configuration, this means that in practice there could be a period of roughly two years from the time that a new requirement is published by a reporting body to when a reporting company has data of sufficient quality to include in an annual report. Given the dynamic nature of this landscape, the intervening time could well see the requirements change again within that time interval, so that the company continually expends IS and reporting resources 'chasing a moving target';

- The concept of materiality encourages companies to report on only those aspects of the business that are of most significance to the report's audience. Materiality for purposes of reporting is based on the premise that a large set of available information is sorted and prioritized to distill out what is most meaningful. From an IS and data architecture perspective, however, this implies that the data architecture must be designed and constructed with the capability for collecting a much larger data set than will ultimately be used in the report, and this implied 'slack' of excess data capacity suggests in turn an inherent misspend of company resources, both in establishing the data architecture to collect data destined not to be used, as well as the human resources that capture that same data.

The above issues are exacerbated by both the variety of and the inconsistencies between the different sustainability reporting mechanisms that currently exist.

2.3.3. Integrated reporting at Teck

Currently, Teck produces separate Annual Reports (together with the associated financial disclosures that accompany these) and Sustainability Reports each successive calendar year. The reports are each quite distinct in character. The Annual Report is a typical financially-based report with a Management Discussion and Analysis (MD&A) section and a set of financial statements. The release date for the report is typically in early March to satisfy legal timeline requirements relating to distribution of shareholder information in advance of the company's Annual General Meeting, typically held in April. In recent years, efforts have been made in the narrative section of this report to increase the amount of discussion related to sustainability risks. In contrast, the Sustainability Report is based on the GRI Reporting Guideline. In recent years, it has been structured around Teck's Sustainability Strategy, a set of six sustainability Key Focus Areas for

which Teck has established and published both near-term and longer-term goals. These Focus Areas were established in 2010, not on the basis of a rigorous materiality assessment, but rather by company management on a consensus basis. Since Teck began publishing annual Sustainability Reports in 2001, the release data has incrementally moved forward as report production practices have improved and become more streamlined. Whereas initially the release date of the Sustainability Report was typically in October or November of the following year, more recently the report is released in June of the year following.

The processes by which the two reports are produced are as distinct as the character of the two publications themselves. Data for the Annual Report is compiled and reviewed extensively by staff from Teck's Accounting and Finance departments, with senior personnel from this department also drafting and reviewing the MD&A section of the report. The Corporate Affairs reporting team works with Accounting and Finance on the logistics of report production, ensuring that the details of report compilation, printing and distribution are coordinated and occur within the timeline specified to meet the release date required. The annual Sustainability Report, which is coordinated largely by staff from the Sustainability and External Affairs (SEA) group, involves an initial data collection campaign to canvas operating sites for relevant data, following which the data is reviewed by subject matter specialists in each of the sustainability-related disciplines. These same subject matter specialists contribute content, with the overall report content aligned with GRI Reporting Guidelines through the efforts of sustainability reporting specialists. Corporate Affairs again assists with the compilation, printing and dissemination of the report.

In my opinion, Teck has yet to embark on the transformational change necessary to effectively generate an integrated annual report which is fully aligned with the IIRC Framework. The mechanisms and parts of the organization currently utilized for generating the two different types of annual reports function largely in isolation from each other. Although SEA reporting specialists favor moving report generation processes towards alignment with an integrated reporting framework, and while some elements of the IIRC Framework may be more readily achievable than others, there appears to have been limited internal engagement to date with senior leadership or with

the Finance and Accounting departments as to its possible significance for Teck or the organizational implications of doing so. It is therefore not clear that there is sufficient senior management consensus and buy-in to embark on an integrated reporting path. Provided that Teck senior management agree upon and support an integrated reporting approach, the internal barriers outlined previously each need to be considered and addressed.

For integrated reporting to become established at Teck, the following steps are recommended:

- engage with senior company leadership and within the Finance, Accounting and relevant SEA departments to build an understanding of and the business case for integrated reporting, and to build support for the undertaking;
- establish a core team at a corporate level to lead the effort of changing reporting processes. This team must have representation from the Finance, SEA and Legal groups within Teck, and should be championed by a senior leader from one or more of those teams;
- within the core team, define an implementation strategy and transition plan, including:
 - identification of the elements within an integrated reporting framework that may be implemented in the short and medium terms in a staged manner towards fully aligning reporting practices with an integrated reporting framework;
 - identifying a timetable over which staged implementation should take place;
 - identifying the implementation activities and resources necessary at both site and corporate levels; and
 - explicitly considering the means to address the internal barriers outlined above;
- consult with key internal stakeholders to communicate the vision, create the impetus for change and validate the plan;
- conduct a resource analysis of plan implementation, and include the budgeting of resources into annual and 5-year planning processes;
- communicate and implement the plan.

Since Teck is not yet positioned to embark completely down the integrated reporting path, then as an interim step it seems prudent to align existing reporting processes and report release dates to the extent possible, in an attempt to minimize use

of company resources and lay the foundation for a more holistic, cross-functional report development process in future. In the remainder of this paper, the extent to which these processes may be synchronized, and the means to do so will be explored.

Chapter 3. Outline of current annual reporting practices at Teck

This section details the processes by which Teck's Annual Report and annual Sustainability Reports are generated, so that in subsequent sections of the paper the processes can be compared, and the constraints and opportunities for synchronizing the process may be identified and evaluated.

3.1. Financial reporting

This section outlines the specifics of the processes by which the Annual Report is generated.

3.1.1. Schedule

The schedule for the release of the annual report is driven by the date selected for the company's Annual General Meeting (AGM). Prior to that meeting, the Annual Report must be sent by mail to shareholders, along with the voting information and proxy circular, no less than 21 days prior to the AGM. Teck's AGM is typically held in late April, a date selected by the Board of Directors based upon:

- regulations concerning the release and reporting of fiscal year-end financial data;
- regulations dealing with reporting to the Securities Commission, Toronto Stock Exchange and New York Stock Exchange;
- an obligation to hold an AGM within 15 months of the previous AGM; and
- timing of the scheduled quarterly Board meetings (February, April, September, November)

The Annual Report must therefore be printed and ready for distribution before the end of March. Allowing time necessary for printing, this means that the content of the

report is finalized in late February, with a key milestone in the schedule being the Board of Directors meeting in mid-February, when a final draft of the report is reviewed by Board members.

With the above timelines, there is available only a six week period between the end of the reporting period (December 31st of the preceding calendar year) and the date of the Board review. Much of the work done to compile the report occurs between mid-December and the Board meeting in mid-February, with incorporation of final edits and report production and printing occurring after the Board meeting.

3.1.2. Data collection and review

Financial data is collected by accounting teams throughout the organization on an ongoing basis throughout the year, with monthly data consolidations and reporting for internal management and control purposes. As the end of the calendar year approaches, typically roughly 90% of the data is already complete, with a further 10% awaiting year-end adjustments, reconciliations or re-calculations. These adjustments and re-calculations are incorporated by the third week of January. In December, the accounting team has prepared initial 'mock-ups' of the company financial statements which are pre-screened by Teck's financial auditors in December, so that by the end of December, a prototype of these statements are prepared and ready to be finalized once year-end adjustments are complete.

Data and information systems and architecture

Teck uses general ledger software accounting applications such as Microsoft's AX and Oracle's JD Edwards for its accounting needs. For purposes of consolidating data from these sources, the software application Hyperion Financial Management (HFM) is used. It is the responsibility of each accounting team at locations throughout the organization, through manager review, to ensure that the information from all sources is reliable and accurate on an ongoing basis. (Wong, 2015)

3.1.3. Data assurance

In accordance with regulatory requirements, Teck's financial information is subject to review by an independent auditing firm every three months throughout the year. This activity does not typically involve active visits to operating locations, but questions are nevertheless directed to accounting and management teams at locations as warranted.

For the year-end assurance of information in the financial statements, the independent auditing firm conducts a pre-screening of the prototype financial statements just prior to the end of the calendar year. Once the year-end adjustments and reconciliations are completed in mid-January, a sizeable team of external auditors perform an audit of the consolidated information and supporting detailed information from operating locations. This activity involves many teams working on behalf of the independent auditing firm conducting visits of each operating location. This year-end assurance activity is substantially completed no later than the end of the first week of February.

3.1.4. Writing of report content

The development of Annual Report content follows two, parallel streams which occur simultaneously and which must be brought together at the end of the process in order to compile the report (Teck, 2015b). The narrative portions of the report, captured largely in the Management's Discussion and Analysis (MD&A) and in the descriptions of business unit performance, are written by and involve the input of senior operations and finance management personnel. The initial draft of this portion of the report is drafted in several segments by Corporate Affairs staff in early December, based upon previous report content and knowledge of the significant developments that occurred in the year. These segmented initial drafts are distributed in mid-December to the responsible individuals in the senior management team, who begin the review and editing process. The Financial Statements portion of the report, while clearly linked with the narrative portion, are compiled and reviewed separately as described previously. The schedule of each parallel content development and review process is managed to ensure that these two threads tie together within the allotted timeframe.

3.1.5. Review of report content

Each parallel thread of report content is reviewed several times. The narrative portion of the report undergoes no fewer than six reviews, comprised of an individual review and initial edit by Business Unit heads and functional Vice Presidents (13 people) of the initial draft provided by Corporate Affairs in mid-December, following which a compilation of the report content undergoes a further five rigorously-tracked review and editing rounds by a Review Committee (a further 8 people) during January and early February. The Business Unit heads and functional Vice Presidents are also involved in early review rounds and ultimately sign-off on their portion of report content. The CEO is involved in latter review rounds, and the Board of Directors review proposed report content prior to discussion at their mid-February Board meeting.

The Financial Statements are reviewed through their compilation, undergo independent verification by a third party auditing firm as described previously, and ultimately require the review and sign-off of the Chief Financial Officer (who is also a member of the Annual Report Review Committee) prior to their publication.

3.1.6. Report production and distribution

Once the Board of Directors has reviewed and commented on the report, their suggestions are incorporated in a final editing round, checks are performed that compliance requirements relating to disclosure have been met, and the Chief Financial Officer, who is the Board-designated senior manager to give final approval of the report before it goes to print, provides authorization to print (Harkness, 2015).

Once in print production, the final documents must be prepared for Teck's submission to the Canadian Securities Administrators (via SEDAR) and the United States Securities and Exchange Commission (via EDGAR). The documents must also be translated into French as per SEDAR requirements, and the set of documents posted on the Teck website at the same time as documents are filed with SEDAR and EDGAR.

Once the report content has been approved, the layout, design, production, translation and printing consumes approximately one month of the schedule.

3.1.7. Effort estimate

An estimate of effort to create the Annual Report is provided in Appendix A. Note that this estimate includes only that portion of data consolidation and review directly associated within production of the report - data collection, consolidation, review and assurance conducted throughout the year is excluded from the effort estimate. Also excluded are the printing and distribution costs of the final set of documents, and the costs of the data collection and consolidation software maintenance or upgrades. The estimate reveals a level of effort equivalent to roughly 3.5 full-time equivalent positions. An equivalent cost of that effort has not been estimated, but it must be considered that roughly fifteen percent of that effort total represents contributions by individuals at a company Officer or Board of Director-level.

3.2. Sustainability reporting

This section of the report is centred on processes involved in the production of the annual Sustainability Report. While not the focus of this section, compilation of other annual sustainability-related disclosures such as the DJSI and CDP questionnaires are included where relevant to the timing of or resources for the annual Sustainability report.

3.2.1. Schedule

The schedule for release of the annual Sustainability Report is driven by SRI analysts, who begin to conduct their comparative company analyses in July. The Sustainability Report release date is therefore targeted for mid-June. Several other sustainability disclosure mechanisms (i.e. DJSI, CDP) also fall due in the month of June, so the intended timing for publication of the Sustainability Report is meant to precede these others in order that they can reference, rather than duplicate the contents of the Sustainability Report.

3.2.2. Data collection and review

Unlike financial data, whose processes for collection throughout the year are designed to facilitate year-end 'roll-up' and consolidation, sustainability-related data that is collected through the year often serves primarily a regulatory or operational need, and is not so readily consolidated. As a consequence, the subset of data required specifically for the Sustainability Report is collected in a single, annual data campaign. The preparation for this campaign commences in October, with revisions to the question set within company's enterprise software system StreamLine based on consultation with corporate subject matter experts (SMEs) from each of the relevant disciplines reflected within GRI Reporting Guidelines, any changes in interpretation that may have come to light regarding GRI Reporting Guideline content, and identified improvements from the previous annual sustainability reporting cycle. The data campaign is kicked off with webinar training for data contributors in early November, who are then given until late January to populate the necessary performance data into StreamLine. The late January date accommodates collection of most of the environmental sampling data (including samples collected in December) for which the analytical results may take a number of weeks to be returned from third-party labs. Only sustainability data from revenue-generating sites is collected for purposes of the report - other parts of the organization do not contribute performance data for the report, but may contribute case studies. A workflow and 'audit trail' function within StreamLine tracks the review and approval of site data, until approved for use at a site level by the relevant site General Manager in late February. Once approved at a site level, corporate SMEs each begin a review of their discipline-specific portion of the data, a process which may include consultation with the site specialists from whom the data originates. Following possible reconciliation and editing of data through a back-and-forth process between corporate and site subject matter specialists, data is deemed ready for external data assurance by corporate SMEs. The corporate review, reconciliation and editing process following General Manager approval of site-level data may take up to one month.

Data and information systems and architecture

Unlike financial data, where the consolidation of data from general ledger accounting packages is performed relatively simply through data consolidation software,

sustainability data exists on several different data platforms, the consolidation of which requires some manual data transfers and double-entry of data. Sustainability-related information at a site level may exist in locations as diverse as process data historian (PDH) or laboratory information (LIMS) systems, data loggers, GIS applications (e.g. ArcView), Excel spreadsheets or commercial database systems. At a corporate level, sustainability-related data is collected in several purpose-built, enterprise-level software applications including StreamLine, CarbonBase (for energy and GHG-related data), TrackLine (for tracking engagements with external stakeholders) and a Community Investment database. In addition, the enterprise application SiteLine is used primarily at a site level but has data reporting features that allow data to be viewed directly at a corporate level.

The variety in and cross-platform incompatibility of these various systems contributes to the time and effort required for sustainability data consolidation and review.

3.2.3. Data assurance

The GRI Reporting Guidelines do themselves not contain absolute requirements for independent assurance of reports. Teck's requirement for assurance of its Sustainability Report comes from its membership in ICMM, whose members commit to annual publication of a sustainability report containing independently verified data. The ICMM Assurance procedure stipulates five main areas (called 'Subject Matters' in the ICMM lexicon) for examination during the assurance activity, which are: (ICMM, 2008)

- "Subject Matter 1: The alignment of the member company's sustainability policies to ICMM's 10 Sustainable Development (SD) Principles and any mandatory requirements set out in ICMM Position Statements.
- Subject Matter 2: The company's material SD risks and opportunities based on its own review of the business and the views and expectations of its stakeholders.
- Subject Matter 3: The existence and status of implementation of systems and approaches that the company is using to manage each (or a selection) of the identified material SD risks and opportunities.

- Subject Matter 4: The company's reported performance during the given reporting period for each (or a selection) of the identified material SD risks and opportunities.

NB: For Subject Matters 3 and 4, member companies have the option of choosing a selection of material SD risks and opportunities for assurance in discussion with the assurance provider.

- Subject Matter 5: The company's self-declared application level of the GRI Sustainability Reporting Guidelines.”

.Subject Matters 3 and 4 in particular involve site visits by the independent assurance provider to a sampling of the sites providing sustainability data.

The Sustainability Report assurance process begins in March, during the SME review of site data, when the assurance provider is able to conduct assurance for Subject Matters 1 and 2. Near the completion of the corporate SME review of data, and once that data is in a near-final state with few further changes anticipated, assurance of Subject Matters 3 and 4 commences. Subject Matter 5 is completed only when the report is compiled, reviewed and approaching readiness for publication. The sustainability report assurance process occupies two external auditors (and the internal company resources required to participate in the assurance activity) over a period spanning early February to late June.

Report assurance is not currently a bottleneck in production of the Sustainability Report, as the time and effort for data review and report compilation exceeds by a wide margin that required for assurance.

3.2.4. Writing of report content

Under the GRI G4 Reporting Guidelines, report content should reflect 'material aspects' of the reporting organization's activities and products. This implies that prior to the determination of content or the writing of the Sustainability Report, Teck must undertake some form of materiality assessment to inform report content. In order to conform to the Reporting Guidelines, such a materiality assessment is expected to comprehensively fulfill specific criteria (GRI, 2013c, pp. 11 - 12), and is therefore an integral part of report content development. The materiality assessment has been

undertaken in parallel with the data review by corporate SMEs. Other drivers for report content under the GRI Reporting Guideline include:

- the need to address requirements in the GRI Mining and Metals Sector Disclosures document;
- the need to demonstrate stakeholder inclusiveness in content development, which Teck addresses via a Communities of Interest Panel that provides commentary regarding the outcome of the materiality assessment and advises on topics of interest to stakeholders.

As informed by the materiality process and sector disclosure requirements, the drafting of report content involves various specialists in several iterative steps. In the course of data reviews, corporate SMEs identify noteworthy items, trends and highlights within their respective areas. The reporting team drafts sections of narrative content based on the items identified by the corporate SMEs from their evaluation of data, the previous content on particular topics and in consideration of GRI disclosure requirements. In some instances, SMEs play a more active part in the writing of report content, depending on the nature of the topic. The reporting team also collects and drafts case studies based on input from SMEs and site specialists. Furthermore, the reporting team maintains a GRI Finder, which is an extensive cross-indexed reference within the body of the report to provide links between the GRI Reporting Guideline indicators and corresponding report content so that report readers can quickly locate the content of interest to them.

3.2.5. Review of report content

Data upon which the report is based is reviewed as described previously. Draft report content for a particular topic is first validated by the relevant corporate SME, and then combined with content from other topics into a single rough working draft report by the end of April. At that stage, an editing team consolidates the independently-written pieces of content within the working draft into a document that reads as a coherent whole. This is followed by four separate rounds of reviews, comments and editing. In the initial two rounds, the functional Vice Presidents are involved. The Disclosure Committee (Chief Executive Officer and Senior Vice Presidents of Finance, Legal and Sustainability and External Affairs) are involved in the final three editing rounds. Between each round,

the report editing team incorporates the comments and edits from the reviewers. After the fourth round edits are complete, the report is sent to the independent assurance provider for final validation of data disclosed within the report, following which the letter of assurance is provided for inclusion in the body of the report.

A late-June release date for the Sustainability Report coincides with the timing for completion of the DJSI and CDP questionnaires. As these disclosures are also subject to the review of the Disclosure Committee, the members of that committee are pressed to review several different disclosures simultaneously, which can lead to bottlenecks.

3.2.6. Report production and distribution

Production planning for the report begins at the time a rough working draft of the report is available. The appearance and themes within the Sustainability Report are designed to be complementary to the Annual Report, to reflect its complementary nature. Report layout and pre-production commences upon the conclusion of the third editing round, when few further changes are anticipated in the report contents. Once the Senior Vice President, Sustainability and External Affairs approves the document for release following incorporation of fourth-round edits, the document is published as a .pdf and content is made available via an interactive publically accessible website purpose-built for communication on sustainability matters.

3.2.7. Effort estimate

An estimate of effort to create the annual Sustainability Report is provided in Appendix B. Note that this estimate includes only Teck internal resources - time for consultants and external auditors is excluded, as are the printing and distribution costs of the final report. As for the Annual Report, this estimate includes only that portion of data consolidation and review directly associated with production of the Sustainability Report – data management efforts throughout the year for purposes of regulatory compliance or operational management and any associated internal reporting is excluded from the estimate, as are ongoing costs for data collection software maintenance or upgrades. The estimate reveals a level of effort equivalent to roughly 5.5

full-time equivalent positions. An equivalent cost of that effort has not been estimated. It is noteworthy that an estimated 70% of the total effort occurs at a site level.

Chapter 4. Evaluation of annual reporting practices at Teck

This chapter draws comparisons and highlights notable aspects of practices related to development of the Annual Report and Sustainability Report as described previously in Chapter 3. The latter sections of this chapter focus on bottlenecks and opportunities to advance the release date of the Sustainability Report, with the intent of laying the foundation for a more holistic, cross-functional and integrated report development process in future.

4.1. Key differences

This section contains observations regarding notable differences between Annual Report and Sustainability Report development.

4.1.1. Reporting drivers and timeframe for report development

Annual Report development, from the time report writing begins to the time that the Board of Directors carries out a final review of the report, spans two months (mid-December to mid-February). For the Sustainability Report, the reporting process commences in mid-October and ends in late June, a period of more than eight months.

The drivers for the Annual Report and its timelines are more clear and established than for the Sustainability Report. The Annual Report, and its timelines, are aimed at satisfying satisfy legal and securities disclosure requirements. The Sustainability Report drivers are not as sharply defined, and the timelines are more discretionary in nature.

4.1.2. The nature of the data

Financial and accounting data is singular in its nature, and measured in a consistent way (albeit in different types of currency). The properties of this data facilitate consolidation and roll-up. Commonalities in the characteristics of financial data and the well-established standards and practices for financial reporting establish a common reference point against which a large number of individuals within the company are able to evaluate the suitability and accuracy of data.

Sustainability data is considerably more complex than financial data, with many different forms of data, different units of measurement and different measurement periods. The characteristic of the data changes with the topic and discipline. Some of the data is purely quantitative (e.g. counting of incidents), some reflects measured or calculated values, and some is descriptive in nature (engagements with stakeholders). Due to the diversity in the types of data and the specialist knowledge necessary to understand and evaluate each type of data, relatively few individuals within the company have the capability to perform such evaluations for any one particular data type.

4.1.3. Practices for collection and consolidation of data

Financial data is collected and aggregated throughout the year, with monthly internal reporting and management review processes well established and designed to facilitate year-end consolidation. There are a relatively few different general ledger accounting packages used, and these are compatible with a financial consolidation software package, so that data may be transferred, aggregated and summarized quickly, with a high degree of automation and with a minimum potential for introducing error.

Sustainability-related data that is collected through the year often serves primarily a regulatory or operational need, and is not so readily consolidated. As a consequence, the subset of data required specifically for the Sustainability Report is collected in a single, annual data campaign. There is a multiplicity of systems at operating sites that house the source data, and a variety of enterprise software applications at a corporate level that aggregate different aspects of site data. Enterprise software applications are largely incompatible in terms of cross-platform data transfers,

and therefore moving information between software systems frequently necessitates double entry of data into different systems, which decreases productivity and increases the chance of error.

4.1.4. Assurance processes

Teck's Internal Audit group conducts assurance activities on an ongoing basis throughout the year. An external, independent review of financial data occurs every three months. For the Annual Report, a large team of external auditors performs an audit of the data in the report over a roughly two to three week period in late January.

With the exception of year-end GHG audits to satisfy Canadian provincial regulatory requirements, little internal or external auditing of sustainability data occurs during the course of the year. For the Sustainability Report, data in the report as well as a number of different Subject Matters (as defined in the ICMM Assurance procedure) are subject to assurance activities by a small number of external auditors over an extended period (roughly three months) while report content is being developed and finalized.

4.1.5. Parallel vs sequential report development

During development of the Annual report, the consolidation, review and audit of the Financial Statements occurs in parallel (i.e. simultaneously) together with the development of narrative, descriptive disclosures and MD&A sections of the report. These two discrete threads of report content are joined together later to produce the final, complementary set of documents.

The development of the Sustainability Report occurs in a largely sequential manner, with the consolidation and review of the data commencing well before the writing of the report content. Data and narrative portions of the report all combine to form one, combined document. The GRI Finder is a detailed, cross-referenced index to assist readers in finding report content of interest to them, and this portion of the report is generated as part of the narrative portion of the report content.

4.1.6. Resources and the involvement of site personnel and senior company leadership in report development

For the Annual Report, the bulk of data collection and consolidation is spread throughout the year utilizing teams of accounting and financial staff at sites and at corporate levels. While these groups also experience peak work intensity in late December through to the end of January to compile and review the data for the report, it is notable that the functional leadership teams (e.g. Vice Presidents of functional areas, Business Units heads) and the executive group (CEO and Board members) also contribute a combined fifteen percent of the effort total, reflecting a relatively high degree of involvement in report development and review.

In contrast, the Sustainability Report relies on a data collection campaign that begins late in the calendar year and extends into February of the following year. The bulk of the time spent in data collection and review occurs at the operating sites (two-thirds of total effort), after which a relatively small number of corporate subject matter specialists conduct reviews of the data over a period of approximately one month prior to external assurance commencing in March. Although some senior corporate leadership roles play a significant part in report development and review (e.g. the Vice President of Community and Government Relations; Vice President of Environment; Disclosure Committee members), in comparison to the Annual Report the combined involvement of members of the senior leadership team is a considerably smaller proportion (four percent) of the total effort.

4.2. Key constraints

This section outlines limitations in report development processes that are considered immutable for the purposes of this paper.

4.2.1. Date of Annual General Meeting

The date of the Annual General Meeting is established by the Board of Directors to satisfy a variety of legal and other criteria. This date in practice establishes the latest

possible release date for the Annual Report, and therefore defines the ‘reporting window’ within which this report must be produced.

4.2.2. Reporting periods

Both the Annual Report and the Sustainability Report utilize December 31st as the end of the reporting period. While arguably this date could (in theory) be moved in the case of either report, in the case of the Annual Report there is no apparent driver and a considerable cost for doing so. In the case of the Sustainability Report, moving the year-end date forward (for example, to the end of September) could move forward the date for completion of data reviews and therefore advance the corresponding release date of the report, but in practice the year-end period for data is fixed independently by both reference to regulation (e.g. the British Columbia Reporting Regulation, under authority of the Greenhouse Gas Reduction Cap and Trade Act) and also referenced within reporting-related permit conditions at many of Teck’s operating sites. Moving the year-end date for Sustainability Report purposes would therefore create a new burden of data reconciliation at a site and corporate level, at each year-end reporting cycle, and further complicate an already complex data environment.

4.2.3. Independent assurance of report contents

Both the Annual Report and Sustainability Report require third-party assurance prior to publication. In the case of the Sustainability Report, the requirement for doing so arises as a consequence of Teck’s membership in ICMM. The ICMM Assurance Procedure also stipulates that assurance involve examination of company practices beyond the immediate scope of the report itself, which increases the time and effort involved in the assurance activity. While it may be argued that membership in ICMM (and therefore the requirement for following the ICMM Assurance Procedure) is discretionary, Teck’s continued membership in ICMM is unquestioned, and therefore the reporting and assurance-related consequences of that membership are fixed.

4.2.4. External sources of delay

There two types of external constraints that lead to delays in the receipt of sustainability data. Such delays define the end date of the data collection period, which in turn constrains the completion of data assurance processes and therefore the Sustainability Report itself.

The first constraint arises from the 'lag time' for receipt of analytical results for environmental samples. Many Teck operating sites collect environmental samples and then under chain-of-custody controls send the samples to a third party analytical laboratory for chemical or biological assay. The time for the sample to be collected, packaged, shipped to the receiving lab, stored and prepared at the lab for analysis, the analyses conducted and the results compiled and reported back to the operating sites can be a period of weeks. This lag is exacerbated over the traditional December holiday period. In practice therefore, analytical results of environmental samples collected during the month of December may not be available until mid-to-late January.

The second constraint arises from dependence on external sources of data. For example, aggregate natural gas consumption and diesel consumption figures at operating locations are often not measured directly, but obtained from billing information provided by the suppliers. Due to supplier billing cycles, such information may be delayed for several weeks following the end of the calendar year.

4.2.5. Other resource demands during the January - March period

In the peak work period stretching from mid-December to late January, many finance and accounting staff work almost exclusively activities directed toward preparation of the Annual Report. This circumstance is definitely not the situation for the Sustainability Report, as the site and corporate staff involved in providing and reviewing data for the report carry out parallel duties over this same period. In the case of operating sites, the subject matter experts knowledgeable in the sustainability data are the same people who must provide day-to-day support for operations. Many operations also face a set of regulatory reporting deadlines falling due in the first quarter of the year as a condition of their operating permits, and typically these same site-level subject

matter experts either participate in or are responsible for complying with these regulatory reporting requirements. In the case of corporate subject matter experts, these same individuals are involved in consolidating, reviewing and analyzing data for purposes of several other internal and external reporting obligations related to year-end activities (e.g. DJSI, CDP) as described previously.

4.3. Bottlenecks in the timeline for development of the Sustainability Report

This section outlines some identified bottlenecks (or ‘critical path’ items) in the timeline for release of the Sustainability Report. As Teck is already successful in producing its Annual Report in a relatively short timeframe, potential bottlenecks in the production of the Annual Report are not considered within this section.

4.3.1. Data availability, quality and accuracy

There are several factors that inhibit the availability, quality and accuracy of the data available for sustainability reporting. These include:

- multiple, overlapping and changing reporting expectations that lead to uncertainty at an operating location and corporate level as to what data is actually required, for what intended purpose and context as to how it will be used;
- lack of standardization in terms of how, where and in what units of measure data is collected through the year;
- the end-of-year, campaign-nature of the annual Sustainability Report data collection process, and lack of interim mechanisms through the course of the year to follow-up, check or provide assurance on an ongoing basis as to data suitability, quality and completeness for purposes of external sustainability reporting;
- the end-of-year data requests based on new (or new interpretations of) GRI indicators but for which insufficiently advanced notice has been provided to operating locations, leading to data either not being collected or being improperly collected during some or all of the reporting period;
- sparse or intermittent data collection and diversity in the quality of data collected across different operating locations, driven in part by the factors listed above.

This creates a bottleneck in the reporting timeline because data that is identified as missing, unsuitable or conflicting with other data forces both corporate reviewers and site subject matter specialists to revisit the source data to identify and resolve the source of the discrepancy. Since data review occurs before report writing commences, any such iteration or lengthening of the data review period pushes out the timeline for report completion.

4.3.2. Data review

Notwithstanding the factors that lead to ‘bad data’ as outlined above, the pace at which the data can be reviewed once collected is limited by the small number of corporate subject matter experts that are capable of properly contextualizing, understanding and evaluating the various incoming forms of data to judge its legitimacy and accuracy. As these individuals are conducting these data reviews while simultaneously carrying out other, parallel duties, any event or demand that draws their attention away from their data review will lengthen the overall duration of the data review process.

This creates a bottleneck in the reporting timeline because since data review is a precursor step to report writing, any lengthening of the data review and evaluation period pushes out the timeline for report completion.

4.3.3. Report writing and editing

Three different but related bottlenecks in report development arise from the current manner in which narrative report content is developed and finalized.

The first bottleneck relates to the dual role played by the corporate subject matter experts, both in reviewing data in their respective areas and in distilling from that data the key messages upon which the core of the narrative for that area is based. While the two roles are complementary in nature, in practice the individuals concerned cannot perform both tasks simultaneously, and so the duration of both tasks is extended as they are co-dependent on a very small set of individuals.

The second, corresponding bottleneck relates to the breadth of content knowledge and capacity of the individuals tasked with writing the report content. The authors of the narrative report content must simultaneously meet a number of criteria for report content, namely to produce content that is:

- technically sound and defensible;
- substantive, meaningful and understandable to interested readers with various levels of technical knowledge;
- fulfilling disclosure requirements of the GRI Reporting Framework;
- linguistically correct; and
- consistent with Teck's positions and prior public disclosures on a topic.

Currently, the above conditions are met by including three different types of authors in the report writing process - specialists in the technical area of activity (e.g. management of energy and greenhouse gases), specialists in the area of sustainability reporting (with knowledge of GRI disclosure requirements) and specialist document editors. Once the corporate subject matter experts have identified the key trends, themes and messages from the data they have evaluated, a highly iterative, consultative and time consuming process ensues to craft the narrative contents of the report.

The highly iterative process described above also introduces the risk of a third 'quality bottleneck' related to the accuracy of information disclosed. Through the drafting and editing process, it is possible that editorial changes made for purposes of readability and clarity may sacrifice the accuracy of information disclosed unless edits are carefully scrutinized by technical subject matter experts. Such scrutiny is time consuming and introduces further iterations to the editing process, creating a natural tension between the timeliness of report completion and the accuracy of report content.

4.4. Opportunities for advancing the release date of the Sustainability Report

This section contains some possible avenues by which tasks on the 'critical path' of Sustainability Report development can be shortened, resulting in an earlier publication date for the report. As Teck is already successful in releasing its Annual Report three

months earlier than its Sustainability Report, the Annual Report is not the subject of this section.

4.4.1. Reduce the number of overlapping reporting commitments

To alleviate the competing demands on subject matter specialists during the data collection, data review and early stage report drafting stages, consideration should be given to lessening the variety of reporting commitments that Teck has subscribed to. For example, declining to respond to the set of CDP questionnaires would make more time available for corporate subject matter experts in the areas of energy and greenhouse gases, water and product stewardship.

4.4.2. Improve data quality and data collection practices

Practices aimed at improving the quality and completeness of data collected through the year will lessen the time required for data collection, data review and follow-up of data discrepancies between corporate and site subject matter experts. Based on Teck's experience with Annual Reporting, some possible actions in this regard could include:

- expanding efforts in communication to, training of and support for site subject matter experts as to sustainability data needs and requirements from an annual basis to a more regular or ongoing basis;
- establishing mechanisms and providing resources for internal assurance of data throughout the year;
- predicting, communicating and initiating some months in advance the changes required in data collection systems to afford operating locations the opportunity to prepare data collection systems and personnel in advance of the start of a new reporting period.

4.4.3. Increase capacity for data review and interpretation

Review and evaluation of data, and the ability to interpret and attach significance to that data is currently funneled through a very small set of corporate subject matter experts who are largely (but not exclusively) members of the corporate Environment and Community teams.

Supplementing this capacity in order to expedite the review of incoming sustainability data is expected to have an immediate impact in reducing the period for data reviews and therefore reducing the duration of a 'critical path' item in generating the report. Some alternatives that could be considered to supplement capacity include:

- bringing in additional subject matter expertise on a 'peak work' basis, either through use of consultants or by temporary work assignments from Teck personnel elsewhere in the organization. Both are not without difficulties - consultants are largely unfamiliar with the context of Teck's operations, the data and the individuals involved, whereas temporary assignments from elsewhere in Teck are particularly problematic at this time of year, for the very reason of year-end reporting demands throughout the organization, or alternatively;
- creating a position to address both the ongoing data quality and data assurance issues identified previously, providing support to operating sites and the corporate office throughout the year, and with sufficient subject-matter knowledge and ability to assist with data evaluation and interpretation during peak reporting periods.

4.4.4. Increase cross-disciplinary capacity in report writers

Currently, the individuals drafting early report content are familiar with the disclosure requirements of the GRI Reporting Guidelines, but rely on the corporate subject matter experts to provide the kernel of information highlights, trends or notable items upon which the narrative is based.

The report drafting process will be most time-efficient when those drafting the report:

- have an in depth understanding of Teck's business and operational context;
- have an in depth understanding of the GRI Reporting Guidelines and disclosure requirements, and
- have sufficient technical familiarity with individual topics covered within the report that they can draft content largely independent of corporate subject matter experts.

Individuals with the above characteristics are likely to be experienced Teck employees with exposure to both external reporting demands and internal operational practices.

4.4.5. Adopt a parallel development model for report content

The Annual Report is produced in a relatively short space of time in part because the review and assurance of financial data is conducted in parallel (i.e. simultaneously) with development of the narrative component of the report. As the data review and assurance process proceeds and the number of uncertainties in the data set diminish, the narrative content that has been developed to that point is adjusted accordingly, so that the two parts of the report are co-developed in a complementary fashion.

Subject to the capacity limitations addressed above, a similar parallel approach to content development could be followed for the Sustainability Report provided that report writers had:

- sufficient familiarity with the Teck context, the significant operating issues and events that occurred year-to-date;
- sufficient knowledge of technical content; and
- some understanding of and certainty in Teck's material aspects (under the GRI definitions)

in order to begin drafting content prior to completion of data collection and review. Like the Annual report, this content could then be further refined during the course of the data review.

4.5. Costs and benefits of advancing the release date of the Sustainability Report

This section provides estimates of the schedule and effort to advance the release date of the Sustainability Report using a parallel development model as outlined above. Potential costs and benefits, and assumptions underlying the approach are also described.

4.5.1. Schedule and assumptions

The hypothetical schedule and the assumptions upon which it is based are informed by the analysis of current annual reporting processes provided in Chapter 3,

the constraints described in section 4.2 and the existing bottlenecks described in section 4.3. The fundamental premise of this section is that the overall duration of report development is reduced by conducting the data collection and data review steps concurrently with the development of narrative report content.

For the purpose of estimation, the schedule and key tasks are assumed as follows:

- July – September: Conduct and complete the report materiality process, including COI Panel review;
- September - October: Select GRI indicators corresponding to material aspects, and prepare data collection systems for the annual data campaign;
- November: Preliminary data collection from operating locations, for data collected to the end of the third quarter and corresponding to the selected GRI indicators. The outcome will be a partial data set intended to enable the commencement of data reviews and formulation of early narrative report content;
- December: Initial screening-level reviews of data and commencement of report writing based on information available at that time. Commencement of report assurance at a corporate level, focussed on ICMM Subject Matters 1, 2, 3 and 5;
- January – early February: Completion of data collection from operating sites. External sources of data (e.g. laboratory analyses for environmental samples, supplier invoices containing data on consumption of fuels) may not be available until early in February. Report writing and iteration of existing narrative content continues during this period;
- Late January – end February: Completion of data reviews by corporate subject matter experts. The first (possibly crude and incomplete) draft containing initial narrative content is compiled by end of February. Assurance of sustainability data (including site-level assurance for sustainability report or regulatory purposes) is well advanced or completed by the end of this month;
- March: Editing of narrative report content, completion of data reviews and data assurance, assurance of report content, early report layout and pre-production;
- April: finalize report content, produce and print report.

This schedule would have the report finalized and produced in late April. This is approximately one month after the release date of the company's Annual Report. The primary obstacle to a closer alignment of the two schedules is the timely availability of sustainability data from the preceding year during the months of January and February.

The key assumptions underpinning this hypothetical schedule are as follows:

- Data collection is assumed to occur in two phases. The first phase of the data collection would occur during the month of November and is expected to result in a preliminary and partial data set, allowing for:
 - Initial review of the partial data set in order to identify remaining gaps and begin with report assurance activities; and
 - Initial evaluation of data to enable commencement of narrative content development for the report;
- The second phase of data collection would be completed in January and early February when operating locations have acquired data to the end of the preceding year. It is assumed that half of the effort required for the preliminary phase of data collection would again be required to conclude the second phase, corresponding with an expected reduction in overall efficiency due to the need to revisit a significant portion of the data;
- It is assumed that a substantive amount of the data needed to commence with report writing is collected in the preliminary phase. A risk in the schedule is that the larger the gaps in data collected during this phase, the greater the potential slippage in the report timeline;
- It is assumed that there is additional capacity at a corporate level to perform initial screening-level reviews of data in the November - December period, so that the data received to that point can be reviewed prior to year-end. The screening-level review would consist of checks for completeness and initial order-of-magnitude comparisons against past reported data;
- It is assumed that there is sufficient capacity available for development of the narrative content of the report, so that this is not a constraining factor in the schedule;
- It is assumed that the review, editing and approval process for the narrative portion of the report remains unchanged;
- Completion of external assurance requirements is assumed to be feasible and not constraining within the schedule, both for report assurance against the ICMM Subject Matters (refer to section 3.2.3, page 29) and year-end GHG audits to satisfy Canadian provincial regulatory requirements.

4.5.2. Effort estimate and costs

With the above hypothetical schedule and set of assumptions, an estimate of effort to create the annual Sustainability Report is provided in Appendix C. As for the corresponding base-case estimate provided in section 3.2.7, this estimate includes only Teck internal resources - time for consultants and external auditors is excluded. Also,

this estimate includes only that portion of data consolidation and review directly associated with production of the Sustainability Report – data management efforts throughout the year for purposes of regulatory compliance or operational management and any associated internal reporting is excluded.

The estimate in Appendix C reveals a level of effort equivalent to roughly 7.8 full-time equivalent (FTE) positions, which represents an increase in overall effort of 2.3 FTE positions over the base case. Note that the relative effort borne by operating locations also increases from 70% of total in the base case to 74% of total under this scenario, largely due to the additional effort necessary for the two phase data collection process.

The primary costs to Teck for attempting to advance the Sustainability Report release date in the manner described are:

- increase in overall effort from 5.5 to 7.8 full-time equivalent positions;
- additional reporting burden for operating locations;
- arising from the increased burden on operating locations, a potential negative impact to internal relationships and a possible loss of credibility amongst internal stakeholders regarding the sustainability reporting activity;
- additional cost at a corporate level, namely for the resources necessary to conduct an initial screening-level review of data from late November through to the end of the calendar year. Other possible increased corporate costs include the cost of external assurance, if additional effort in that regard is required.

4.5.3. Benefits

The potential benefits for advancing the Sustainability Report release date in the manner described are:

- demonstrating to internal stakeholders a number of concrete steps towards producing one, overarching Integrated Report, by improving the alignment of internal processes and resources for annual financial and sustainability reporting;
- maintaining and strengthening Teck's external reputation as a leader in sustainability reporting by virtue of a significantly earlier report release date;
- aligning the timing of the materiality process for the Sustainability Report with the planning and budgeting phases of the annual business cycle, so that the processes may better complement each other;

- reducing collection of superfluous data by utilizing material aspects identified during the materiality process to define sustainability data collection practices. It is anticipated that such reductions in effort will be relatively small, as data currently collected is reasonably well aligned with GRI indicators.

4.5.4. Assessment

Comparing the efforts, costs and benefits of advancing the release date of the Sustainability Report, it is clear that the efforts and costs are tangible and relatively certain, whereas the benefits are less tangible and are somewhat tenuous. Taken at face value, such an undertaking does not appear to be immediately favorable for Teck, but ultimately the decision as to whether some shorter term sacrifices must be made to advance towards a longer term objective of producing an Integrated Report is one for Teck's senior management team to consider.

Chapter 5. Recommendations for a path forward

In this final section of this report, some recommendations are made for, in the near term, moving towards alignment of publication dates for both Annual and Sustainability Reports, and in the medium and longer terms, laying a foundation for success should Teck continue down the current path towards publishing a single integrated report (for example, as per the IIRC Reporting Framework).

Throughout this section, some implications for implementation of these recommendations are discussed. As a general comment, it is clear that while some near-term changes in reporting practices and additional resources might result in some benefits regarding closer alignment of reporting schedules, it is also clear that the more fundamental changes implied by the IIRC Reporting Framework may invoke more far-reaching changes in how Teck organizes and resources itself to coordinate and carry out the reporting activity. These more fundamental changes will require clear direction and leadership from the most senior levels of the organization, may require a re-alignment of resources within the organization, and will require application of change management practices at many levels of the organization. Such changes should also be expected to require a number of years of unrelenting, focussed effort to successfully move the organization down this path.

5.1. Advancing the release date of the Sustainability Report

5.1.1. De-bottlenecking the report process

The latter sections of Chapter 4 of this report outline some current bottlenecks in the timeline for producing the Sustainability Report, some opportunities for alleviating those bottlenecks and provide a hypothetical schedule, with corresponding costs and benefits, for advancing the release date of that report. In summary, it is recommended

that in order to advance the release date of the Sustainability Report, Teck adopt a parallel process for report production analogous to production of the Annual Report, whereby development of the narrative portion of the report happens concurrently with the collection and review of the data upon which the report is based. The assumptions and details of the efforts, costs and benefits of such an undertaking are described in detail within section 4.5. Such an undertaking does not appear to be immediately favorable for Teck, but ultimately the decision as to whether some shorter term sacrifices must be made to advance towards a longer term objective of producing an Integrated Report is one for Teck's senior management team to consider.

Related to this effort, and irrespective of whether or not Teck decides to pursue a parallel process for Sustainability Report development analogous to the Annual Report, the following should be considered:

- Creation of the narrative component of the Sustainability Report is most effectively accomplished when those drafting report content have cross-disciplinary capacity and some familiarity with operational activities and events that occur through the year. Pairing such knowledge with an equivalent level of knowledge of GRI Reporting Guideline requirements is not a skill set that is easily or quickly acquired, and so efforts should be made to grow and retain such capacity within the organization;
- Efforts to enhance the suitability, quality and completeness of sustainability data should be expanded, with a move away from an intense, episodic focus on data quality and completeness towards an ongoing, routine data assurance model for sustainability data, analogous to how financial data is treated within the company.

5.1.2. Resources and systems

As outlined previously in Chapter 3 and section 4.1, one of the distinguishing differences between processes for Annual Report and Sustainability Report production is the presence of extensive internal resources and systems for coherently managing financial and accounting data and assimilating such information into management decision making at both an operating location and corporate level on a year-round basis. This enables the relatively rapid consolidation, review and assurance of data and a correspondingly short period of time to finalize the Annual Report.

In comparison, resources and systems for managing sustainability data on an ongoing basis are both limited and fragmented, resulting both in a reliance on site resources during data campaigns, as well as creating a bottleneck under the current paradigm through which the Sustainability Report is generated.

The GRI G4 Reporting Guidelines contain reference to 157 data indicators corresponding to approximately 1000 individual information requirements. In light of the existing and ever-growing demands for disclosure of sustainability information, if Teck wishes to shorten the period of time to produce the Sustainability Report while continuing to conform to GRI G4 Guidelines, it should expect that there will be a need to employ more resources than at present to meet this objective. Some of the suggested avenues for increasing or redeploying those resources are detailed in sections 4.3 and 4.4 and summarized in the preceding section.

5.2. Moving towards Integrated Reporting

Further enhancing Teck's conformance to the GRI Reporting Guidelines and shrinking the timeline for producing annually the Sustainability Report may have merits in and of themselves, but also provide a stepping stone for aligning company reporting practices and moving towards publishing an Integrated Report as per the IIRC Reporting Framework. As discussed in section 2.3 of this report, following the Integrated Reporting Framework for company disclosures implies a transformational change in how Teck manages this aspect of its business. If integrated reporting is to become established at Teck, the following steps are recommended:

- engage with senior company leadership and within the Finance, Accounting and relevant SEA departments to build an understanding of and the business case for integrated reporting, and to build support for the undertaking;
- establish a core team at a corporate level to lead the effort of changing reporting processes. This team must have representation from the Finance, SEA and Legal groups within Teck, and should be championed by a senior leader from one or more of those teams;
- within the core team, define an implementation strategy and transition plan, including:

- identification of the elements within an integrated reporting framework that may be implemented in the short and medium terms in a staged manner towards fully aligning reporting practices with an integrated reporting framework;
 - identifying a timetable over which staged implementation should take place;
 - identifying the implementation activities and resources necessary at both site and corporate levels; and
 - explicitly considering the means to address the internal and external barriers to integrated reporting outlined in section 2.3.2;
- consult with key internal stakeholders to communicate the vision, create the impetus for change and validate the plan;
 - conduct a resource analysis of plan implementation, and include the budgeting of resources into annual and 5-year planning processes;
 - communicate and implement the plan.

5.3. Establishing a foundation for success

Throughout this report, a number of recurring themes have emerged, none of which requires immediate resolution but each of which, if not addressed in the medium and longer term have the potential to increasingly constrain Teck's ability to satisfy the expectations of its internal and external stakeholders.

5.3.1. Rationalize the number of reporting commitments

As outlined in section 2.2.3 of this report, there are a host of sustainability reporting mechanisms within the current reporting landscape, each with its own distinct characteristics and requirements, and each promoted by different organizations or agencies to serve different purposes. Such mechanisms continue to proliferate and become ever more complex. Teck currently participates in several such mechanisms (a number of which are described in detail in section 2.2.4), each of which requires company resources to fulfill. In some cases, the timelines for responding to different mechanism overlaps, leading to excessive resource demands over peak periods.

Teck should identify and evaluate all the different sustainability reporting mechanisms to which it subscribes, clarify the rationale for participation in each, decide which of these provide sufficient benefits to warrant the effort expended, and then discontinue participation in the remainder. In particular, Teck should consider if continuing to respond to the CDP questionnaire is warranted. Such an evaluation and review process of sustainability reporting mechanisms should occur every few years into the foreseeable future, while the sustainability reporting landscape continues to shift and evolve.

5.3.2. Establish data collection systems and practices with a view to the future

As outlined in section 3.2.2 of this report, the data systems and practices by which sustainability report data is gathered are currently highly fragmented and lack mechanisms for the ongoing assurance of data suitability and quality, leading to a bottleneck in the timeline for producing the Sustainability Report (refer section 4.3.1). As reporting demands increase in both number and complexity, the data systems and practices needed to support company reporting must keep pace - a risk to Teck is that the rate of change of stakeholder expectations may far exceed the organization's capacity to adapt its data infrastructure and practices to keep abreast of changing reporting requirements, ultimately resulting in an inability to meet stakeholder expectations.

Teck should begin now to 'get in front of' anticipated future data needs, by considering and potentially adopting elements of the framework for financial and accounting systems that companies have utilized successfully over many decades. This framework, including the use of integrated software applications and designated human resources for managing and assuring data quality, serves to rapidly and reliably provide data with a high degree of confidence. Teck can begin to transition to a more robust sustainability data system by shifting the paradigm for Sustainability Report data collection from an annual, campaign-based model to one where data definition, collection and assurance becomes a more widespread and routine activity throughout the year. In particular, Teck should consider:

- expanding the communication to, training of and support for site subject matter experts as to sustainability data needs and requirements, and increasing the frequency of these efforts from an annual basis to a more regular or ongoing basis;
- establishing mechanisms and providing resources for internal assurance of data throughout the year (for example, by re-purposing some resources within the Internal Audit group);
- predicting, communicating and initiating some months in advance the changes required in data collection systems to afford operating locations the opportunity to prepare data collection systems and personnel in advance of the start of a new reporting period; and
- creating a position to provide ongoing data quality and data assurance support to operating sites and at the corporate office throughout the year.

5.3.3. Align the organization around future reporting needs

Currently, the mechanisms and parts of the organization utilized for generating the Annual Report and Sustainability Report function largely in isolation from each other. An integrated report will however be a result of integrated and cross-functional thinking within an organization, which in turn is facilitated by an organization that functions in an integrated fashion. Over and above the recommendations related to aligning organizational thinking as outlined in section 5.2 above, Teck should be cognizant of and responsive to the organizational tensions arising from cross-functional demands in a traditional organizational structure, and periodically reconsider how to best structure the organization to serve its business and reporting needs.

Regardless of the organizational structure, aligning the organization for the future in a sustainability reporting context will also necessitate addressing issues of capacity and resources. There is an obvious difference between, for example, financial and accounting resources within the company and comparable resources for sustainability data management. As sustainability reporting mechanisms continue to proliferate and become more complex, the company must align the resources applied to reporting activities with the nature of the reporting demands it seeks to fulfill. This is made more challenging by the ever changing nature of the reporting landscape, since adaptation to such change requires a period of relatively intense effort until the organization has come to terms with and internalized the new set of requirements. Unfortunately for reporting

companies such as Teck, continued evolution of the sustainability reporting landscape is expected within the foreseeable future, implying a continuing disproportionate commitment of resources to address an uncertain and shifting set of stakeholder expectations.

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Appendix A.

Effort estimate for Annual Report

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1			Estimates are in units of person-days of effort																		
2			One person-year (FTE) = 230 person-days (assuming 4 weeks vacation and 11 statutory holidays each year)																		
3				Report PM	CA team	CA Director	Technical accounting team	Data consolidation team	Finance and Acct staff	Acct teams - all sites	Internal audit team	External auditors	Legal	BU Heads and Functional VPs	Review Committee	CEO	Board of Directors				
4				Corp Affairs			Finance and Accounting						Functional Leadership		Executive		Totals				
5			Data collection and consolidation																		
6			End-of-year data consolidation				50	50	50	50											200
7			YE Adjustments and reconciliations				50	50													100
8			Data review																		
9			Prototype Fin Statements				10														10
10			Corrected Fin Statements				25	25	25	5											80
11			Data assurance																		
12			Independent assurance (January)				10	10	5	130	400										155
13			Report writing																		
14			Draft front end narratives	1	2	1												1			5
15			Revise in prep for first review	1	2	1								6.5							11
16			Report content review and editing																		0
17			Individual review of prelim draft	1	2	1								13							17
18			First round review	2	5	1								6.5	8						23
19			Second round review	2	5	1								6.5	8						23
20			Third round review	2	5	1								6.5	8						23
21			Fourth round review	2	5	1								8							16
22			Fifth round review	2	10	1								8	1	7					29
23			Final BU Head and Func VP sign-off	2	2									6.5							11
24			Board review	2	5	2									1	1	7				18
25			Post-Board meeting clean-up	2	2	1									2						7
26			Final compliance checks							2			2	1							5
27			Report production and distribution																		
28			Layout and prep for printing	10	2	2									1						15
29			Translation	5																	5
30			Project management	20																	20
31																					
32				Totals	54	47	13	145	135	80	185	2	400	2	46	45	2	15			771 (excludes ext auditors)
33																					
34																					3.35 FTE positions

Cell comments for the above sheet are shown on the next page.

Cell	Comment
E3	4 people
G3	5 people
H3	10 people
N3	13 people, senior VP and VP level
O3	8 people, senior VPs and counsel
Q3	14 people. CEO is also on Board of Directors, part of this 14
O28	MMS
D30	CH O/T

Cell	Comment
D8	E-mail from Roxanna E at CdA dated July 1 used as template. Roxanna estimates roughly 510 hours site time to enter, review and approve data ($\div 8$ for days effort). There are 13 operating sites involved in providing data, so multiply her estimate by 13
G8	Chasing people
G10	Dumping data, distributing
I10	Based on estimates provided by Chris A
P11	1/2 day x 4
I12	Based on estimates from Chris A, split between writing and editing checks
I14	Based on estimates from Chris A. Split between management process and data rows
P14	Estimate 1 day each
D15	2 days per site x 2 sites x 10 people per site. Coordination at site is another 2 days effort for a person
F15	4 days on site + setting up visit schedule and logistics
K15	Less here because this undergoes assurance already through external auditors for regulatory + financial
P17	Estimate 1 day each
Q17	Primarily MMS
D19	13 sites, half day per site. Case studies have to come from somewhere!
F20	Assuming much from previous report can be reviewed and updated
F21	3 weeks @ 10-12 hours per day
I21	Based on estimates from Chris A, split between this and review-stage data checks
F24	2 CGR + 2 Corp Affairs people. Sessions + follow-up edits and consolidation. Sessions are 1.5 days each. Follow-up on gaps during editing takes a lot of time
P28	1/2 day x 4
C33	During the year
C34	Defining and communicating roles, responsibilities, schedules etc.

Cell	Comment
B5	Define materiality prior to beginning data collection - no use pulling data on non-material aspects
P5	Estimate 2 days each. Earlier in the schedule, tied to annual business planning
Q5	Primarily MMS
B7	To enable report writing and data consolidation to occur in parallel, need to collect data earlier towards the end of the calendar year. Given constraint about year-end cutoffs, this implies two data cycles - preliminary and final
D10	Refer to cell D8 of Appendix B. A partial or preliminary data capture exercise in the final stages of the year requires a very similar expenditure of effort, whether that data is complete or not
G10	Chasing people
D11	Assumes bulk of data entry is done prior to year-end, but cycling back and checking / re-working numbers is an additional effort (est. 50% of original effort - worse than for financial, as all that data is homogeneous in character)
G11	Chasing people
F13	Assumes a data analyst role dedicated to this function to do the first-cut review and assessment. This does NOT include the time that would be spent through the year on this
P14	1/2 day x 4
G15	Dumping data, distributing
I15	Based on estimates provided by Chris A
I16	Based on estimates from Chris A, split between writing and editing checks
F18	In this instance, would impose added burden on data analyst role, so more time on this in isolation from SMEs
I18	Based on estimates from Chris A. Spilt between management process and data rows
P18	Estimate 1 day each
D19	2 days per site x 2 sites x 10 people per site. Coordination at site is another 2 days effort for a person
F19	For team member coordinating this on site: 4 days on site + setting up visit schedule and logistics
K19	Less here because this undergoes assurance already through ext auditors for regulatory + financial
D21	13 sites, half day per site. Case studies have to come from somewhere!
F22	Assuming much from previous report can be reviewed and updated
H22	More compressed, needs more resources. Pinched in terms of simultaneous writing with Annual Report
F23	3 weeks @ 10-12 hours per day
I23	Based on estimates from Chris A, split between this and review-stage data checks
F26	2 CGR + 2 CA people. Sessions + follow-up edits and consolidation. Sessions are 1.5 days each. Follow-up on gaps during editing takes a lot of time
P30	1/2 day x 4

Cell	Comment
C35	During the year
C36	Defining and communicating roles, responsibilities, schedules etc.