

2016 REPORT

Oil and Gas Review

A|S|C

Alberta Securities Commission

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1. Introduction

1.1 General

Alberta is the largest producer of crude oil and natural gas in Canada. While pricing of both commodities has been under significant pressure in recent years, the oil and gas industry continues to be a major contributor to the economies of both Alberta and Canada. In 2015, the oil and gas industry accounted for approximately 18 per cent of Alberta's gross domestic product¹ and was the largest recipient of private capital investment in Canada.²

The annual Alberta Securities Commission (ASC) oil and gas review report (Report) consists of observations and analysis of disclosure from issuers that report under National Instrument 51-101 *Standards of Disclosure for Oil and Gas Activities* (NI 51-101), as well as selected regulatory topics of interest. The Report's content is drawn primarily from 2016 disclosure and is intended to assist reporting issuers (RIs) with their preparation of effective oil and gas disclosure for the benefit of all capital market participants.

At the beginning of 2016, there were 222 RIs actively engaged in oil and gas activities that were principally regulated by the ASC, of 324 regulated by all Canadian jurisdictions. At December 31, 2015, oil and gas issuers (including only oil and gas and service companies) represented 9 per cent of the combined listed issuers on the Toronto Stock Exchange and TSX Venture Exchange (10 per cent in 2014) and 10 per cent of their aggregate market capitalization (11 per cent in 2014).³ At the same time, 56 per cent of Alberta's aggregate market capitalization was attributed to these issuers (59 per cent in 2014).⁴

NI 51-101 is the cornerstone of Canadian oil and gas disclosure; it sets out both the general disclosure standards and specific annual disclosure requirements for RIs engaged in oil and gas activities. The ASC leads the oversight of NI 51-101 on behalf of the Canadian Securities Administrators (CSA), the umbrella group of Canada's provincial and territorial securities regulators.

The *Securities Act* (Alberta) is designed to ensure that Alberta's capital market operates fairly and efficiently, and that investors have access to timely and accurate information. To this end, the ASC encourages effective and compliant oil and gas disclosure, based on the provision of balanced, authentic, relevant and reliable information.

Under section 2.1 of NI 51-101, RIs are required to provide the following on an annual basis:

- Form 51-101F1 *Statement of Reserves Data and Other Oil and Gas Information*;
- Form 51-101F2 *Report on [Reserves Data][,] [Contingent Resources Data] [and] [Prospective Resources Data] by Independent Qualified Reserves Evaluator or Auditor*; and
- Form 51-101F3 *Report of Management and Directors on Oil and Gas Disclosure*.

¹ Highlights of the Alberta Economy 2016, Alberta Government

² Statistics Canada

³ The MiG Report, December 2014 and December 2015, TMX Group

⁴ The Alberta Capital Market, May 2015 and May 2016, ASC

Specific circumstances may necessitate the filing of:

- Form 51-101F4 *Notice of Filing of 51-101F1 Information*; and
- Form 51-101F5 *Notice of Ceasing to Engage in Oil and Gas Activities*.

1.2 Executive Summary of Observations and Analysis

The ASC reviews RIs' continuous disclosure, including both general and required annual disclosure, in order to assess its compliance with securities regulations, including NI 51-101. As a result of these reviews, staff may identify deficiencies, such as errors and omissions that are potentially misleading. Depending on the specific circumstances, staff may address deficiencies directly with the RI.

Staff's reviews of disclosure have resulted in the identification of a number of common deficiencies over the past year. Notable concerns involve contingent resources and prospective resources, significant factors or uncertainties affecting reserves data and properties with no attributed reserves, drilling locations and associated information, oil and gas metrics, and reserves reconciliations. Observations and analysis regarding these deficiencies are summarized below and discussed in detail further in this Report.

Examples of concerns relating to:

- **Contingent resources and prospective resources:**
 - absence or inadequate disclosure of the methodology used to determine risked estimates
 - absence or inadequate disclosure of the risks and level of uncertainty associated with recovery of estimates
 - absence of disclosure of the significant positive or negative factors relevant to estimates
- **Significant factors or uncertainties affecting reserves data or relevant to properties with no attributed reserves:**
 - absence of disclosure specific to the RI
- **Drilling locations and associated information:**
 - lack of clarity regarding whether estimates have been prepared by a qualified reserves evaluator or auditor
 - lack of clarity regarding whether estimates attributed to drilling locations have been prepared in accordance with the COGE Handbook
 - misleading or potentially misleading disclosure
- **Oil and gas metrics:**
 - inaccurate descriptions of the methodology used to calculate metrics
 - absence of descriptions regarding the meaning of metrics
 - inadequate descriptions of the parameters used to calculate metrics
- **Reserves reconciliations:**
 - incorrect opening and closing balances
 - issues with disclosure in individual reserve change categories
 - absence of explanations regarding disclosure in individual reserve change categories

Amendments to NI 51-101 and its related forms, and changes to Companion Policy 51-101CP *Standards of Disclosure for Oil and Gas Activities* (51-101CP), were effective July 1, 2015 (Amendments). The Amendments promote improved disclosure of resources other than reserves and associated metrics, recognize new product types, provide increased flexibility regarding disclosure for oil and gas issuers that operate and report in different jurisdictions, and better align NI 51-101 with the Canadian Oil and Gas Evaluation Handbook (COGE Handbook).

NI 51-101 requires that all oil and gas disclosure be prepared in accordance with the COGE Handbook. As noted in section 1.1 of NI 51-101, the COGE Handbook is amended from time to time and accordingly, oil and gas disclosure must be compliant with it upon publication of any changes. There were two updates in 2014, including publication of the detailed guidelines for estimation and classification of bitumen resources and the guidelines for estimation and classification of resources other than reserves (ROTR Guidelines).

1.3 Disclosure Commentary

Throughout its history, the oil and gas industry has been shaped and guided by change involving a complex interplay of technology, economics, regulations, politics and society. For example, new technologies are developed, implemented, improved and supplanted, in response to economic factors, access to capital and labour costs, as well as regulatory, political and social factors. While change has been constant, the recent pace of change has been extraordinary. The CSA has responded to these changes with publication of the Amendments and other initiatives.

The traditional industry approach of drilling vast numbers of relatively low-cost vertical wells conventionally perforated and stimulated with low-tonnage hydraulic fracture stimulations has been substantially replaced with the drilling of a much smaller number of horizontal wells, typically drilled from multi-well pads and completed with intensive, multi-stage hydraulic fracturing stimulations. This capital-intensive approach is being aggressively applied to reservoirs that were generally inaccessible with older technologies as well as to established reservoirs to achieve incremental recoveries. Recoverable volumes attributed to the combination of horizontal drilling and multi-stage hydraulic fracturing are typically larger in quantity, and are developed and produced over a much longer timeframe than those attributed to more traditional drilling and completion practices.

The increased costs and recoverable volumes associated with horizontal drilling and multi-stage hydraulic fracturing, along with the extended development and production timeframe, has transformed the way RIs raise capital and necessitated changes to oil and gas evaluation practices and disclosure. With these changes, the proper disclosure of contingent resources and prospective resources, and the significant factors or uncertainties that affect reserves data, or are relevant to properties with no attributed reserves, are as important as ever. The disclosure of drilling locations and associated information, and oil and gas metrics, can also play an important role in communicating information regarding an RI's assets, while reserves reconciliations have a critical role to play in accounting for changes in reserves over time, which can confirm or diminish confidence in an RI's activities.

Importantly, section 92(4.1) of the *Securities Act* (Alberta) prohibits misleading disclosure:

No person or company shall make a statement that the person or company knows or reasonably ought to know

- (a) in any material respect and at the time and in the light of the circumstances in which it is made,
 - (i) is misleading or untrue, or
 - (ii) does not state a fact that is required to be stated or that is necessary to make the statement not misleading,

and

- (b) would reasonably be expected to have a significant effect on the market price or value of a security, a derivative or an underlying interest of a derivative.

Section 1.4(2) of NI 51-101 states regarding oil and gas activities (defined in section 1.1 of NI 51-101):

[I]nformation is *material* in respect of a *reporting issuer* if it would be likely to influence a decision by a reasonable investor to buy, hold or sell a security of the *reporting issuer*.

General guidance and several examples regarding misrepresentations and misleading statements are provided in section 2(a)(i)(A) of CSA Staff Notice 51-327 *Revised Guidance on Oil and Gas Disclosure* (CSA Staff Notice 51-327). RIs that are uncertain whether their disclosure is compliant with the *Securities Act* (Alberta) and NI 51-101, are encouraged to seek an appropriate professional advisor.

2. Observations and Analysis Regarding Deficiencies in Disclosure

2.1 Overview

This Report provides the first detailed assessment of disclosure made following the Amendments coming into force. It incorporates observations and analysis drawn from staff's reviews of RIs' continuous disclosure, including the forms required to be disclosed annually by section 2.1 of NI 51-101, as well as news releases, prospectuses and investor presentations. These reviews are conducted on an ongoing basis in an effort to assess compliance with securities regulations. Additional observations and analyses are a result of staff interactions with industry representatives and feedback from the ASC's annual NI 51-101 Oil and Gas Review Information Session.

The most common disclosure deficiencies noted by staff are discussed below.

2.2 Contingent Resources and Prospective Resources – General

Disclosure of resources other than reserves, which includes contingent resources and prospective resources, has increased dramatically in recent years. Under NI 51-101, this disclosure is generally optional, with exceptions including:

- if the information is material with respect to section 1.4(2) of NI 51-101 (also see section 2(a)(i)(B) of CSA Staff Notice 51-327);
- information concerning properties with no attributed reserves that is required to be disclosed under Part 6 of Form 51-101F1 (see section 5.7(1) of 51-101CP for additional information); and
- prospectus disclosure if the information is material to the RI as contemplated by NI 51-101, per the general securities disclosure obligation of “full, true and plain” disclosure of all material facts, even if the disclosure is not specifically mandated by NI 51-101. (Refer to section 5.10(2) of 51-101CP and item 5.5 of Form 41-101F1 *Information Required in a Prospectus*, which discusses requirements for RIs with oil and gas operations.)

Disclosure requirements for resources other than reserves have been developed around the concept of risk. “Risky” is defined in section 1.1 of NI 51-101 as:

[A]djusted for the probability of loss or failure in accordance with the *COGE Handbook*.

Any risk associated with development of a project results in the chance of commerciality of that project being less than 100 per cent. “Chance of commerciality” is defined in CSA Staff Notice 51-324 *Revised Glossary to NI 51-101 Standards Of Disclosure For Oil And Gas Activities* (CSA Staff Notice 51-324) as:

The product of the *chance of discovery* and the *chance of development*.

As reserves are commercial, they have no associated risk. Their chance of commerciality is effectively 100 per cent, as described in section 5.3.3 of volume 1 of the COGE Handbook:

To be classified as reserves, estimated recoverable quantities must be associated with a project(s) that has demonstrated commercial viability. Under the fiscal conditions applied in the estimation of reserves, the chance of commerciality is effectively 100 percent.

With the exception of reserves, all categories of resources have risk associated with them, resulting in their chance of commerciality being less than 100 per cent. This applies to both prospective resources and contingent resources.

Prospective resources have a chance of commerciality equal to the product of chance of discovery and chance of development. As contingent resources have been discovered, they have a chance of commerciality equal to chance of development. Under NI 51-101, the disclosure of resources other than reserves must address the associated risks.

2.2.1 Contingent Resources and Prospective Resources – Observations and Analysis

The most frequent deficiencies observed by staff regarding the disclosure of resources other than reserves involve risk. These deficiencies generally involve the following requirements:

- Part 7 of Form 51-101F1 *Statement of Reserves Data and Other Oil and Gas Information* (Form 51-101F1) – the absence or inadequate disclosure of the methodology used to determine risk estimates of contingent resources data or prospective resources data;
- section 5.9(1) of NI 51-101 – the absence or inadequate disclosure of the risks and level of uncertainty associated with the recovery of estimates of resources other than reserves; and
- section 5.9(2) of NI 51-101 – the significant positive or negative factors relevant to estimates of resources other than reserves.

Part 7 of Form 51-101F1 – Optional Disclosure of Contingent Resources Data and Prospective Resources Data

Part 7 of Form 51-101F1 was added with the Amendments. Part 7 discusses the optional disclosure of contingent resources data and prospective resources data in a statement disclosed under section 2.1(1) of NI 51-101 (Form 51-101F1). In particular, Part 7 requires the risking of all estimates of volumes and future net revenue, and disclosure of the methodology used to determine the estimates.

For contingent resources data, item 7.1(2) requires disclosure of the numeric value of the chance of development risk and a description of the method of:

- (a) quantifying the *chance of development* risk;
- (b) estimating the *contingent resources* adjusted for *chance of development* risk and the associated *risked* net present value of *future net revenue*.

For prospective resources data, item 7.2(2) requires the disclosure of the numeric value of the chance of discovery and chance of development, and a description of the method of:

- (a) quantifying the *chance of discovery* and *chance of development*;
- (b) estimating the *prospective resources* adjusted for *chance of discovery* and *chance of development*.

Quantification of chance of discovery and chance of development is discussed in section 2.7(4.1) of 51-101CP. The requirement to provide an explanation regarding the determination of risked volumes and values disclosed under items 7.1(2) and 7.2(2) is emphasized.

The following is an example of deficient disclosure with respect to item 7.1(2).

EXAMPLE

The Chance of Development of the contingent resources (estimated at 65%) is the probability that a resource, once it has been discovered, will be commercially developed, considering the risks of a viable established recovery technology being identified, available and performing adequately, the economics being viable, a development plan being in place, development occurring within a reasonable timeframe and other contingencies which may be necessary to overcome (such as regulatory and environmental approvals) for the project to proceed.

Staff's concerns with this disclosure include:

- it does not adequately describe how the value disclosed for chance of development was determined; and
- it does not adequately describe how the contingent resources were estimated.

Section 5.9(1) of NI 51-101 – Disclosure of Resources Other than Reserves

Section 5.9(1) of NI 51-101 addresses all disclosure of resources other than reserves and discusses requirements for RIs that disclose anticipated results from resources not currently classified as reserves. Section 5.9(1)(d) requires disclosure in writing in the same document or in a supporting filing of:

[T]he risks and the level of uncertainty associated with the recovery of the *resources*.

Section 1.1 of NI 51-101 defines anticipated results as:

[I]nformation that may, in the opinion of a reasonable person, indicate the potential value or quantities of *resources* in respect of the *reporting issuer's resources* or a portion of its *resources* and includes:

- (a) estimates of volume;
- (b) estimates of value;
- (c) areal extent;
- (d) pay thickness;
- (e) flow rates; or
- (f) hydrocarbon content.

Pertaining to the requirements of section 5.9(1)(d) of NI 51-101, section 5.7(2) of 51-101CP states that:

[A] *reporting issuer* should ensure that their disclosure includes the risks and uncertainties that are appropriate and meaningful for their activities. This may be expressed quantitatively as probabilities or qualitatively by appropriate description. If the *reporting issuer* chooses to express the risks and level of uncertainty qualitatively, the disclosure must be meaningful and not in the nature of a general disclaimer.

The following is an example of deficient disclosure with respect to section 5.9(1)(d).

EXAMPLE

Significant risks and uncertainties that may affect the Company's reserves and associated future net revenue include:

- material changes to existing taxation or royalty rates;
- changes to environmental laws and regulations;
- changes in product pricing;
- changes to capital expenditures and operating costs;
- surface access issues including overland flooding;
- weather;
- receipt of regulatory approvals;
- availability of services and processing facilities; and
- unforeseen production performance issues.

Staff's concerns with this disclosure include:

- while it may be appropriate to provide this general information, it must be accompanied with disclosure specific to the RI, as all RIs are expected to share these similar significant risks and uncertainties
 - if relevant, the disclosure should address specific changes to taxation or royalty rates or environmental laws and regulations under consideration by a jurisdiction in which the RI operates; specific RI views on product pricing, capital expenditures, and operating costs; regulatory approvals anticipated by an RI; availability of services and processing facilities; specific surface access or weather issues anticipated by an RI, etc.;
- “unforeseen production performance issues” is not an appropriate significant risk and uncertainty; uncertainty is inherent in all estimates, and if the estimation and classification has been done appropriately, long-term results should not vary significantly from the certainty levels attributed to the estimates.

Section 5.9(2) of NI 51-101 – Disclosure of Resources Other than Reserves

Section 5.9(2) of NI 51-101 discusses requirements when disclosure referred to in section 5.9(1) includes an estimate of a quantity of resources other than reserves in which the RI has or intends to acquire an interest, or an estimated value attributable to an estimated quantity. In these circumstances, section 5.9(2)(d)(iii) requires disclosure of:

[T]he significant positive and negative factors relevant to the estimate.

Regarding satisfaction of the requirements of section 5.9(2)(d)(iii), section 5.7(3)(c) of 51-101CP states:

[I]f there is no infrastructure in the region to transport the resources, this may constitute a significant negative factor relevant to the estimate. Other examples would include abandonment and reclamation costs, a significant lease expiry, theft and sabotage...or any legal, capital, political, technological, business or other factor that is highly relevant to the estimate.

The following is an example of deficient disclosure with respect to section 5.9(2)(d)(iii).

EXAMPLE

There are several significant positive and negative factors relevant to the estimates of contingent resources. Negative factors include limited well data, the ability to access capital to develop the contingent resources, commodity pricing, access to technical services, the performance of existing company wells in the areas which may influence future development, regulatory issues that may affect Company timelines and weather related issues. Positive factors include a midstream firm considering construction of a natural gas processing plant in close proximity to Company lands.

Staff's concern with this disclosure is that it is not accompanied with information specific to the RI. Similar to the disclosure example provided with respect to section 5.9(1)(d), all RIs would be expected to share these similar significant positive and negative factors. However, in this example the disclosure regarding the positive factors is more specific than what is often observed.

2.3 Significant Factors or Uncertainties

Item 5.2 of Form 51-101F1 requires identification and discussion of significant economic factors or uncertainties affecting particular components of reserves data. Item 6.2.1 of Form 51-101F1 requires this disclosure for significant economic factors or uncertainties that have affected or are reasonably expected to affect the anticipated development or production activities on properties with no attributed reserves. Staff frequently observe an absence of meaningful disclosure with respect to these items.

Item 5.2 refers to “reserves data”, which is defined in section 1.1 of NI 51-101 as:

[A]n estimate of *proved reserves* and *probable reserves* and related *future net revenue*, estimated using *forecast prices and costs*.

Item 6.2.1 refers to properties with no attributed reserves.

“Property” is defined in CSA Staff Notice 51-324 as:

Includes:

- (a) fee ownership or a *lease*, concession, agreement, permit, licence or other interest representing the right to extract *oil* or *gas* subject to such terms as may be imposed by the conveyance of that interest;
- (b) royalty interests, *production* payments payable in *oil* or *gas*, and other non-operating interests in *properties* operated by others; and
- (c) an agreement with a foreign government or authority under which a *reporting issuer* participates in the operation of *properties* or otherwise serves as “producer” of the underlying *reserves* (in contrast to being an *independent* purchaser, broker, dealer or importer).

A *property* does not include supply agreements, or contracts that represent a right to purchase, rather than extract, *oil* or *gas*.

“Reserves” is defined in section 1.1 of NI 51-101 as:

[P]roved, *probable* or *possible reserves*.

Properties with no attributed reserves, therefore, refers to properties that have anything other than

proved, probable or possible reserves attributed to them. This includes properties with contingent resources or prospective resources assigned and properties with no recoverable volumes assigned.

Instruction (1) of items 5.2 and 6.2.1 provides examples of economic factors or uncertainties for consideration. These include significant abandonment and reclamation costs, and unusually high expected development costs or operating costs. These are only two examples among many possibilities. To satisfy the requirements of items 5.2 and 6.2.1, RIs must ensure that anything that represents a significant factor or uncertainty specific to their situation is identified and discussed.

Instruction (2) states that if the information required to be disclosed is contained in the RI's financial statements and notes for the most recent financial year, the RI may direct the reader to this information instead of duplicating it.

The following is an example of deficient disclosure with respect to item 5.2.

EXAMPLE

The process of evaluating reserves is complex and requires significant judgments and decisions based on available data. These estimates may change substantially as additional data becomes available and as economic conditions change. The reserve estimates contained herein are based on current production forecasts, prices and economic conditions, and other factors and assumptions that may affect the reserve estimates and the present worth of the future net revenue therefrom. These factors and assumptions include, among others: (i) historical production in the area compared with production rates from analogous producing areas; (ii) initial production rates; (iii) production decline rates; (iv) ultimate recovery of reserves; (v) success of future development activities; (vi) marketability of production; (vii) effects of government regulations; and (viii) other government levies imposed over the life of the reserves. Positive or negative revisions to reserves estimates can arise from changes in these factors and assumptions.

Staff's concerns with this disclosure include:

- while it may be appropriate to provide this general information, it must be accompanied with disclosure specific to the RI, as all RIs are expected to share these similar significant economic factors or uncertainties;
 - prices and economic conditions are expected to change over time (these changes are taken into account in the estimation and classification of reserves), specific concerns regarding prices and economic conditions are required to be identified and discussed if significant;
- if the estimation and classification has been done appropriately, long-term results should not vary significantly from the certainty levels attributed to the estimates and the impact that additional data may have on estimates is accounted for in the uncertainty attributed to the estimates; therefore discussion regarding the complexity of reserves estimation may not be appropriate.

2.4 Drilling Locations and Associated Information

Disclosure of drilling locations and associated information, such as recoverable volumes and economics, is a common practice with disclosure, occurring in news releases, investor presentations and even prospectuses. This disclosure can be problematic because these drilling locations may actually be drilling prospects, or they may simply represent a particular well density approved by a regulator. In other words, they may not represent actual drilling locations that have been appropriately assessed.

The lack of clarity is often compounded by the absence of accompanying disclosure concerning the associated risks and uncertainties of these locations. RIs are reminded that, depending on the particular circumstances, disclosure of drilling locations and associated information may be misleading, which is prohibited by section 92(4.1) of the *Securities Act* (Alberta). In certain cases, a more appropriate term for these drilling locations may be “potential drilling opportunities”, particularly if they have not been evaluated and assigned reserves or resources other than reserves by a qualified reserves evaluator or auditor in accordance with the COGE Handbook.

All disclosure, including that regarding drilling locations and associated information:

- **Must be prepared by a qualified reserves evaluator or auditor** – This is discussed in section 5.2(1)(a)(ii) of NI 51-101 and also in section 5.9(2)(a), with respect to resources other than reserves in which the RI has an interest or intends to acquire an interest, or an estimated value attributable to an estimated quantity. The latter requires the RI to disclose, in the same document or in a supporting filing, that an estimate of resources other than reserves in which the RI has an interest or intends to acquire an interest, or an estimated value attributable to an estimated quantity, has been prepared or audited by a qualified reserves evaluator or auditor.

Section 5.10(1) of NI 51-101 states that if the disclosure is analogous information, it does not need to meet the requirements of sections 5.2 and 5.9 of NI 51-101 (as all other disclosure does), if it is accompanied with information concerning its source, independence, preparation and relevance.

“Analogous information” is defined in section 1.1 of NI 51-101 as:

[I]nformation about an area outside the area in which the *reporting issuer* has an interest or intends to acquire an interest, which is referenced by the *reporting issuer* for the purpose of drawing a comparison or conclusion to an area in which the *reporting issuer* has an interest or intends to acquire an interest, which comparison or conclusion is reasonable, and includes:

- historical information concerning *reserves*;
- estimates of the volume or value of *reserves*;
- historical information concerning *resources*;
- estimates of the volume or value of *resources*;
- historical *production* amounts;
- production* estimates; or
- information concerning a *field*, well, basin or *reservoir*.

However, section 5.10(2) states:

[I]f a reporting issuer discloses information that is an *anticipated result*, an estimate of a quantity of *reserves or resources*, or an estimate of value attributable to an estimated quantity of *reserves or resources* for an area in which it has an interest or intends to acquire an interest, that is based on an extrapolation from *analogous information*, sections 5.2, 5.3, 5.9 and 5.16 apply to the disclosure of the information.

RIs are directed to section 5.8 of 51-101CP for further information concerning disclosure of analogous information.

- **Must be prepared in accordance with the COGE Handbook** – Section 5.2(1)(a)(iii) of NI 51-101 discusses this requirement with respect to all oil and gas disclosure, which includes the disclosure of volumes and associated net present value of future net revenue attributed to drilling locations and associated information. Section 5.9(2)(b) further discusses disclosure of resources other than reserves in which the RI has an interest or intends to acquire an interest, or an estimated value attributable to an estimated quantity, while section 5.10(1) discusses this with respect to analogous information. Furthermore, section 5.3(1) of NI 51-101 (referred to in 5.9(2)(c) of NI 51-101) states:

Reserves or resources other than reserves must be disclosed using the applicable terminology and category set out in the COGE Handbook and must be classified in the most specific category of reserves or resources other than reserves in which the reserves or resources other than reserves can be classified.

The use of incorrect and misleading terminology, such as “reserves in-place”, “potential reserves” and “undiscovered reserves” is discussed in section 5.7(3)(b) of 51-101CP.

- **Must not be misleading** – To help avoid misleading disclosure with respect to anticipated results from estimates of resources other than reserves, RIs are reminded that section 5.9(1)(d) of NI 51-101 requires disclosure of the associated risks and level of uncertainty, while section 5.9(2)(d)(iii) requires disclosure of the significant positive and negative factors relevant to the estimates. This is discussed in detail in section 2.2 of this Report.

Additionally, staff may deem the disclosure of a group of drilling locations representing more than one category of reserves or resources other than reserves to be misleading, as the disclosure is not in the most specific category, as required by section 5.3(1) of NI 51-101, and the risks and level of uncertainty associated with the disclosure varies by category. See section 5.16 of NI 51-101 for a discussion regarding the summation of resource categories.

The following is an example of drilling location disclosure that staff would consider deficient:

EXAMPLE

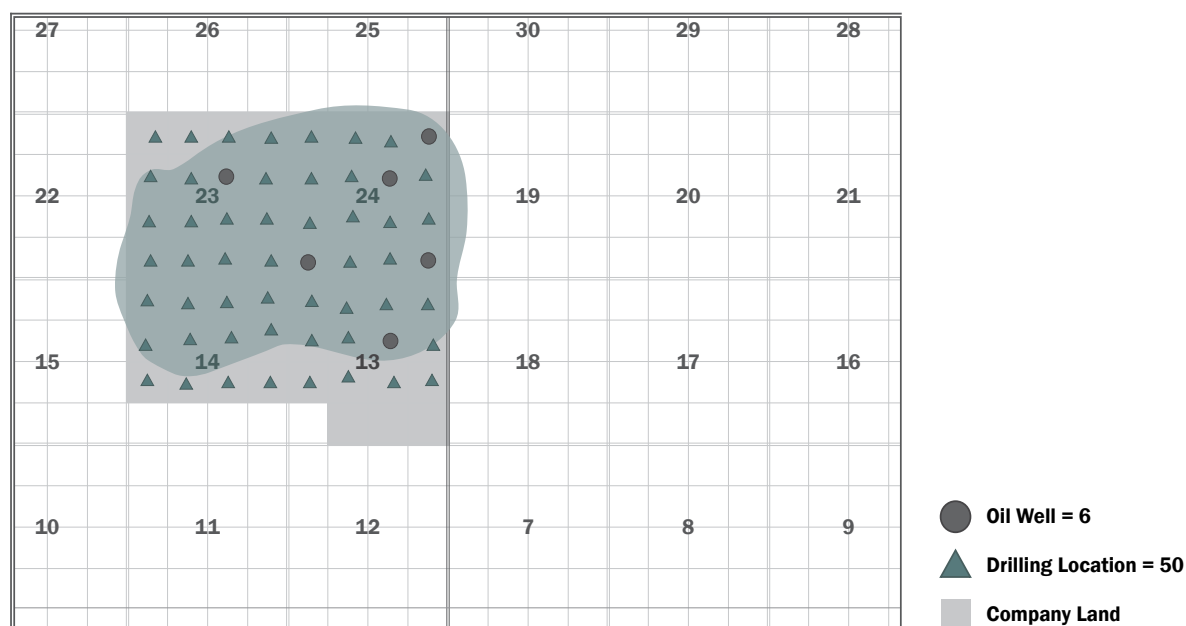
Current drilling inventory consists of approximately 50 low-risk locations.

Staff's concerns with this disclosure include:

- if the information relates to resources other than reserves
 - it is not clear if the inventory has been prepared by a qualified reserves evaluator or auditor, as required by sections 5.2(1)(a)(ii) and 5.9(2)(a) of NI 51-101;
 - it is unclear if the inventory has been prepared in accordance with the COGE Handbook, as required by sections 5.2(1)(a)(iii) and 5.9(2)(b) of NI 51-101; and
 - the most specific categories of reserves or resources other than reserves attributed to the drilling locations comprising the inventory have not been provided, as required by section 5.3(1) of NI 51-101 and section 5.9(2)(c);
- since risk and uncertainty of recovery varies by category of reserves and resources other than reserves, referring to the locations as low-risk may not be accurate and may in fact be misleading; and
- the inventory may represent a summation of two or more categories of reserves and resources other than reserves, contrary to section 5.16(1) of NI 51-101.

An example of the potential variability in risks and uncertainty attributed to drilling locations comprising an inventory like this is illustrated in Figure 1.

Figure 1 Example of Drilling Location Disclosure



The map indicates that the pool hosts six producing wells, while 50 drilling locations have been attributed to the pool and adjacent land. The drilling locations in close proximity to the producing wells would typically be considered to have lower risk and lower uncertainty, with risk and uncertainty increasing with distance from the producing wells. The risk and uncertainty would reach a maximum for the locations situated beyond the current pool boundary. However, simply disclosing the total number of locations does not adequately convey this information.

2.5 Oil and Gas Metrics

Section 1.1 of NI 51-101 defines “oil and gas metric” as:

[A] numerical measure of a *reporting issuer’s oil and gas activities*.

Oil and gas metrics include barrel of oil equivalent (BOE), net asset value, reserve replacement, and finding and development costs, among others. Section 5.14 of NI 51-101 discusses disclosure using oil and gas metrics and states:

- (1) If a *reporting issuer* discloses an *oil and gas metric*, other than an estimate of the volume or value of *resources* prepared in accordance with section 5.2, 5.9 or 5.18 or a comparative or equivalency measure under Part 2, 3, 4, 5, 6 or 7 of *Form 51-101F1*, the *reporting issuer* must include disclosure that
 - (a) identifies the standard and source of the *oil and gas metric*, if any,
 - (b) provides a brief description of the method used to determine the *oil and gas metric*,
 - (c) provides an explanation of the meaning of the *oil and gas metric*, and
 - (d) cautions readers as to the reliability of the *oil and gas metric*.
- (2) If there is no identifiable standard for an *oil and gas metric*, the *reporting issuer* must also include disclosure that
 - (a) provides a brief description of the parameters used in the calculation of the *oil and gas metric*, and
 - (b) states that the *oil and gas metric* does not have any standardized meaning and should not be used to make comparisons.

Guidance regarding certain common oil and gas metrics is found in 51-101CP. Section 5.8.2, for instance, provides a sample cautionary statement regarding BOEs that can be used to satisfy section 5.14(1)(d), while section 5.9 discusses finding and development costs.

Frequent deficiencies observed by staff regarding oil and gas metrics involve disclosure not meeting the requirements of sections 5.14(1)(b), 5.14(1)(c) and 5.14(2)(a) of NI 51-101. Most commonly, the description provided does not enable the metric to be replicated, suggesting that the methodology or its explanation are inaccurate.

Some oil and gas metrics meet the definition of a non-GAAP financial measure as defined in CSA Staff Notice 52-306 (Revised) *Non-GAAP Financial Measures*. RIs may consider consulting this notice to ensure that the disclosure of such non-GAAP measures is done in a manner that is not misleading,

2.6 Reserves Reconciliations – General

Item 4.1 of Form 51-101F1 requires disclosure of an annual reconciliation of changes in estimates of gross proved reserves (in total), gross probable reserves (in total) and gross proved plus probable reserves (in total). This reconciliation is required by country, product type specified in item 4.1(2)(b), and category (reserve change category) specified in item 4.1(2)(c). These reserve change categories are required to be separately identified and the disclosure in each category explained. This reconciliation compares reserves data at the effective date for the most recent financial year, with the corresponding estimates at the last day of the preceding financial year, which is the “opening balance” of the reconciliation. The results of this comparison comprise the “closing balance” of the reconciliation.

Reserve change categories specified in item 4.1(2)(c) are:

- (i) extensions and improved recovery;
- (ii) technical revisions;
- (iii) discoveries;
- (iv) acquisitions;
- (v) dispositions;
- (vi) economic factors;
- (vii) *production*.

Instruction (4) of item 4.1 requires reserves attributed to infill drilling either be included in extensions and improved recovery or in a separate reserve change category labelled “infill drilling.”

Staff regularly observe deficiencies with respect to reserves reconciliations. Examples of some of these deficiencies are provided below.

- **Opening balance** – Volumes for the current year failing to match the previous year’s closing balance. These should match.
- **Extensions and improved recovery, infill drilling and discoveries** – The erroneous recording of negative volumes. Once volumes have been assigned to these reserve change categories, subsequent changes should be identified as either technical revisions or economic factors, except as noted in section 7.3.4 of volume 2 of the COGE Handbook.
- **Technical revisions** – The erroneous recording of negative technical revisions that are greater than 100 per cent of the opening balance. It is impossible to remove volumes of reserves in excess of the opening balance of reserves solely through a technical revision.
- **Acquisitions** – Incorrect dates used when accounting for reserves additions through acquisitions.

Paragraph 7.3.3(g) of volume 2 of the COGE Handbook incorrectly states “additions are recorded at the closing date of the acquisition.” RIs should instead refer to Section 2.7(6)(c) of 51-101CP, which correctly states that the proper date to reconcile changes in the acquired reserves is the effective date:

[T]he reserves estimate to be used in the reconciliation is the estimate of reserves at the *effective date*, not at the acquisition date, plus any *production* since the acquisition date. This *production* must be included as *production* in the reconciliation. If there has been a change in the reserves estimate between the acquisition date and the *effective date* other than that due to *production*, the reporting issuer should explain this as part of the reconciliation in a footnote to the reconciliation table.

“Effective date” is defined in section 1.1 of NI 51-101 as:

[T]he date as at which, or for the period ended on which, the information is provided.

- **Production** – Volumes fail to match those reported under item 6.9 of Form 51-101F1. These should match.
- **Closing balance** – Volumes fail to match those disclosed under item 2.1(1) of Form 51-101F1. These should match.
- **Units of measure** – There are missing or inconsistent units of measure. The latter is addressed in General Instruction (8) of Form 51-101F1, which advises against switching between imperial units and Système International (SI) units, without compelling reason. If switching does occur, staff encourage disclosure of the reason.
- **Reserve change categories** – The use of reserve change categories not specified in item 4.1(2)(c) or Instruction (4) of item 4.1 of Form 51-101F1. If a category is not specifically listed, it is not a reserve change category. An RI must use the available categories and, if necessary, provide discussion to explain unusual circumstances.
- **Explanations** – No accompanying explanations are provided for disclosure in individual reserve change categories. Item 4.1(2)(c) of Form 51-101F1 requires separate identification and explanation of disclosure in each reserve change category. Without the provision of an explanation, changes may occur that cannot be easily understood. Examples of this may include a large technical revision, an acquisition or a re-categorization of reserves. For the latter, probable reserves could be re-categorized as proved reserves, whereby in the absence of an explanation, it could go unnoticed because if all else remained equal, the proved plus probable reserves (in total) would remain unchanged.

Instruction (5) of item 4.1 of Form 51-101F1 discusses reconciliation requirements for RIs that become engaged in oil and gas activities after the last day of their preceding financial year, resulting in an absence of reserves data at that particular date. In this circumstance, as there is no reserves data to be reconciled, RIs are not required to provide a reconciliation. Instead, the reason for its absence must be provided.

Additional information concerning preparation of the reserves reconciliation is provided in 51-101CP. For example, section 2.7(6)(a) discusses situations in which an RI reports reserves for its most recent financial year, but had no reserves to report at the start of the financial year (at which time the RI was presumably engaged in oil and gas activities). If the added reserves were material to the RI, a reconciliation must be disclosed. In these situations, the opening balance will be zero. Section 5.10(4) of 51-101CP discusses reserves reconciliations with respect to initial public offerings.

2.6.1 Reserves Reconciliations – Observations and Analysis

Figure 2 presents reconciliations of summed gross proved plus probable reserves (in total) disclosed during 2016. These represent oil and gas activities that occurred in 2015, for groups of issuers principally regulated by the ASC. (See CSA Staff Notice 51-324 for definition of the term “gross.”) RIs were ranked and then grouped based on average daily gross sales volumes disclosed quarterly by country and product type, under item 6.9 of Form 51-101F1. The groups are as follows: seniors >100,000 BOE per day (based on a conversion ratio of 6 thousand cubic feet of gas for every 1 barrel of oil); intermediates 10,000 to 100,000 BOE per day; and juniors <10,000 BOE per day. Based on their respective ranking, the highest ranked issuers were selected for inclusion in the reconciliations. Ten senior issuers exceeded 100,000 barrels of oil equivalent per day and all were selected, while the top 20 intermediates and top 50 juniors were selected.

Within each group of selected RIs, volumes disclosed by each RI in each applicable reserve change category specified in item 4.1(2)(c) of Form 51-101F1 were summed. The per cent change between the opening balance of 2015 (the closing balance of 2014) and the closing balance of 2015 was calculated. The results are presented in figures 2a, 2b and 2c. Positive and negative changes plot to the right and left of the opening balance (denoted as 0 per cent), respectively. While generalized, the purpose of this exercise is to assess the quality of reserves estimates disclosed by RIs of similar size.

Figure 2 2015 Gross Proved Plus Probable Reserves Reconciliations by Group

Figure 2a Seniors

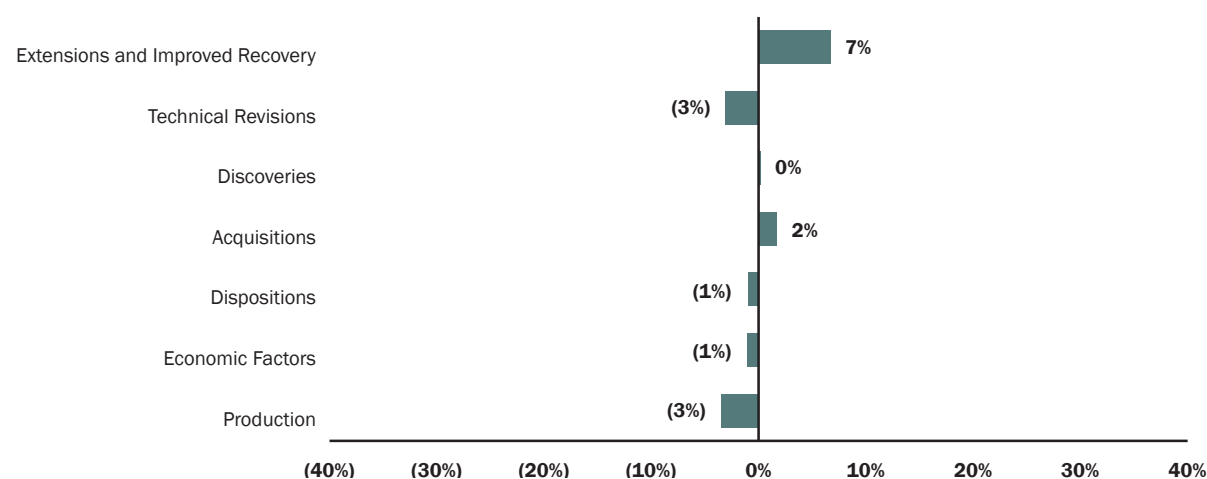


Figure 2b Intermediates

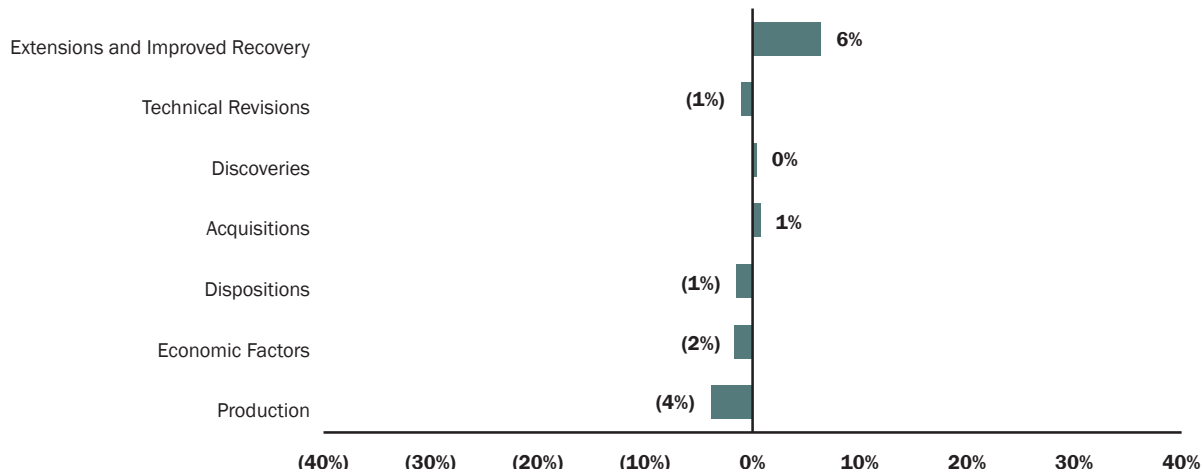
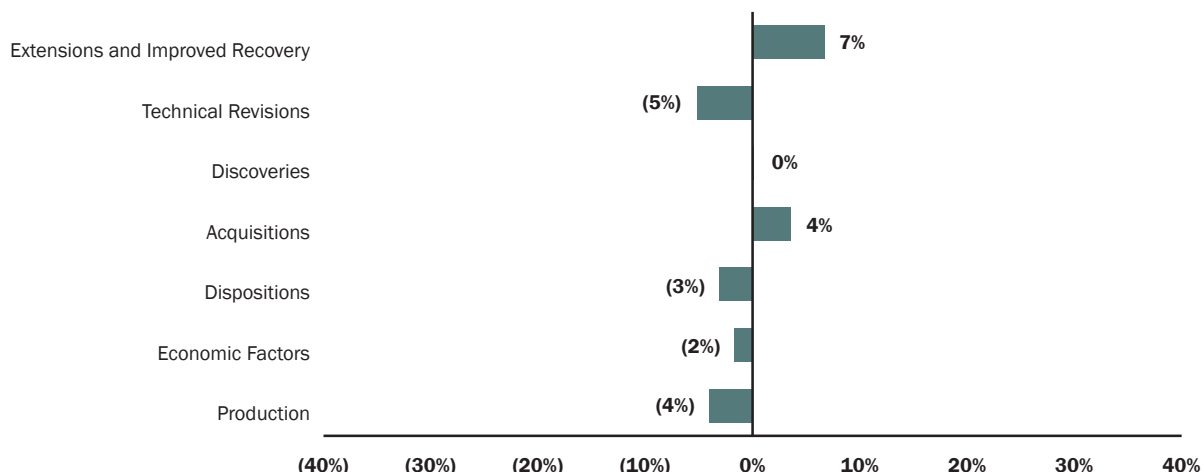


Figure 2c Juniors



As illustrated in figures 2a, 2b and 2c, changes in extensions and improved recovery are present in all three groups, ranging from 6 per cent for the intermediates, to 7 per cent for both the seniors and juniors. For the seniors, three RIs disproportionately influence the result, while four do so for each of the intermediates and juniors.

Technical revisions are negative for all three groups, ranging from negative 1 per cent for the intermediates to negative 5 per cent for the juniors. Two senior RIs, one intermediate and one junior disproportionately account for the negative technical reconciliation in each group. If these RIs are removed from the analysis, the results become neutral for each. For each of these RIs, a single product type accounts for the majority of their negative revision. In comparison, the 2015 Oil and Gas Review Report showed a negative 4 per cent technical revision for the seniors, a positive 1 per cent change for the intermediates and a positive 3 per cent change for the juniors.

Changes in discoveries are small for the three groups, consistent with the movement away from exploratory activity in recent years and an increasing emphasis on activities related to extensions and improved recovery. Only three senior, five intermediate and four junior RIs disclosed discoveries.

Changes in both acquisitions and dispositions are relatively small for the three groups, with the largest attributed to the juniors. The three groups show slight negative adjustments to economic factors.

2.6.2 Reserves Reconciliations – Quality of Reserves Estimates

In addition to providing information concerning an RI's activities, reserves reconciliations can provide insight into the quality of reserves estimates. In particular, over time, the technical revisions reserve change category can provide insight into whether or not estimates have been meeting the certainty levels for proved and proved plus probable reserves (described in section 5.4.3 of volume 1 of the COGE Handbook). Specifically, positive and negative technical revisions are generally attributed to better or poorer reservoir performance (respectively) than initially forecast. For a given entity, if reserves have been determined in accordance with the certainty levels described in section 5.4.3, proved reserves should be adjusted positively over time, while proved plus probable reserves should remain relatively constant.

Three consecutive oil and gas review reports have included a reconciliation analysis using the methodology described in section 2.6.1 of this Report, accounting for reserves reconciliation data attributed to 2013, 2014 and 2015. While an insufficient quantity of information acquired using this methodology is available to conduct a long-term analysis of the quality of reserves data, some preliminary conclusions can be drawn. The estimates appear to be high quality overall, although the reserves quality appears to vary for individual RIs within each group. The ASC will pay particular attention to negative technical revisions in its future reviews of disclosure.

3. Topics of Interest

3.1 Overview

This section contains information concerning current topics of interest with respect to oil and gas disclosure. The subject matter is drawn from staff observations and interactions with capital market participants, including RIs, independent qualified reserves evaluators or auditors, and legal professionals. Two topics are reviewed: the term “property” and minimum disclosure requirements in Form 51-101F1.

The information provided is not exhaustive; there is more available in NI 51-101 and in its related forms and guidance that should be considered. Please consult an appropriate professional advisor.

3.2 The Term “Property”

The term “property” is central to NI 51-101 and its related forms. Feedback from capital market participants indicates that some are unclear on its meaning and application. To help clarify, this section will review the definition of the term itself, the definitions of several related terms and two key references to the term in Form 51-101F1.

3.2.1 Definitions

“Property” is defined in CSA Staff Notice 51-324 as:

Includes:

- (a) fee ownership or a **lease** (emphasis added), concession, agreement, permit, licence or other interest representing the right to extract *oil* or *gas* subject to such terms as may be imposed by the conveyance of that interest;
- (b) royalty interests, *production* payments payable in *oil* or *gas*, and other non-operating interests in *properties* operated by others; and
- (c) an agreement with a foreign government or authority under which a *reporting issuer* participates in the operation of *properties* or otherwise serves as “producer” of the underlying *reserves* (in contrast to being an *independent purchaser*, broker, dealer or importer).

A *property* does not include supply agreements, or contracts that represent a right to purchase, rather than extract, *oil* or *gas*.

Section 1.3 of NI 51-101 states that NI 51-101 applies to RIs engaged directly or indirectly in oil and gas activities, which is defined in section 1.1 of NI 51-101 as:

Includes the following:

- (a) searching for a *product type* in its natural location;
- (b) acquiring **property** rights or a **property** for the purpose of exploring for or removing *product types* from their natural locations;
- (c) any activity necessary to remove *product types* from their natural locations, including construction, drilling, mining and production, and the acquisition, construction, installation and maintenance of **field** gathering and storage systems including treating, **field** processing and **field** storage;
- (d) producing or manufacturing of *synthetic crude oil* or *synthetic gas*;

but does not include any of the following:

- (e) any activity that occurs after the *first point of sale*;
- (f) any activity relating to the extraction of a substance other than a *product type* and their *by-products*;
- (g) extracting *hydrocarbons* as a consequence of the extraction of geothermal steam.

Reserves and resources other than reserves are attributed to properties. The term “property” is central to the definitions of a number of terms in NI 51-101 and CSA Staff Notice 51-324, such as abandonment and reclamation costs, exploration costs, lease and operating costs (or production costs).

A “lease” is a type of property and is defined in CSA Staff Notice 51-324 as:

An agreement granting to the lessee rights to explore, develop and exploit a **property**.

“Field”, which appears in the definition of oil and gas activities, is discussed in section 5.8 of 51-101CP:

For the purposes of *NI 51-101*, CSA staff interpret field to be limited to a single pool or grouping of several pools within the geographic area or administrative unit from which *product types* can be reasonably recovered.

3.2.2 Some Specific Requirements

Several requirements in NI 51-101 and Form 51-101F1 specify disclosure by property. This includes Part 6 of Form 51-101F1, which discusses other oil and gas information. Other requirements indirectly refer to disclosure by property, including item 2.1 of Form 51-101F1, which discusses disclosure of future net revenue and abandonment and reclamation costs. Requirements regarding Part 6 and item 2.1 are discussed below.

Part 6 of Form 51-101F1 – Other Oil and Gas Information

Item 6.1(1) requires identification and description of an RI's important properties, plants, facilities and installations. This includes their location; whether they are situated onshore or offshore; how long non-producing properties that have reserves attributed to them have been in that condition, along with their proximity to transportation; and any relinquishments, surrenders, back-ins or changes in ownership.

Item 6.2(1) requires disclosure of the gross and net areas for unproved properties. This includes the RI's interest in them, their location, and the existence, nature, timing and cost of any work commitments. Item 6.2(2) requires disclosure by country of the net area of unproved property for which the RI expects its rights to explore, develop and exploit to expire within one year.

“Unproved property” is defined in CSA Staff Notice 51-324 as:

A **property** or part of a **property** to which no reserves have been specifically attributed.

In summary, item 6.1(1) of Form 51-101F1 requires an RI engaged in oil and gas activities to disclose specific information concerning oil and gas properties, plants, facilities and installations. Properties are differentiated from plants, facilities and installations, although plants, facilities and installations may be situated on properties as the term is defined in NI 51-101. Item 6.2(1) requires disclosure concerning unproved properties and explicitly references the exploration, development and exploitation of these properties. Properties are where an RI conducts oil and gas activities that involve the search for, acquisition of, or removal of product types and their by-products from their natural locations before the first point of sale, where the RI has the right or otherwise an agreement to do so.

Item 2.1 of Form 51-101F1 – Reserves Data (Forecast Prices and Costs)

Item 2.1(2) mandates disclosure of future net revenue for reserves categories specified in item 2.1(1). The definition of future net revenue refers to disclosure of abandonment and reclamation costs, which in turn refers to property. Item 2.1(3) requires disclosure of abandonment and reclamation costs netted from future net revenue under item 2.1(2) for specified reserves categories.

Abandonment and reclamation costs is defined in section 1.1 of NI 51-101 as:

[A]ll costs associated with the process of restoring a *reporting issuer's property* that has been disturbed by *oil and gas activities* to a standard imposed by applicable government or regulatory authorities.

Abandonment and reclamation costs is used in the definition of future net revenue, which is:

[A] forecast of revenue, estimated using *forecast prices and costs* or *constant prices and costs*, arising from the anticipated development and production of *resources*, net of the associated royalties, *operating costs*, *development costs*, and **abandonment and reclamation costs**.

In summary, item 2.1 of Form 51-101F1 requires an RI engaged in oil and gas activities to disclose future net revenue, along with the abandonment and reclamation costs netted from future net revenue, for specified reserves categories. By definition, future net revenue is net of abandonment and reclamation costs. These abandonment and reclamation costs arise from any oil and gas activities that involve the search for, acquisition of, or removal of product types and their by-products from their natural locations before the first point of sale on an RI's properties where it has the right or otherwise an agreement to do so.

The ASC has published an Office of the Chief Accountant Financial Reporting Bulletin that demonstrates the relationship between disclosure of abandonment and reclamation costs under NI 51-101 and the costs used in impairment calculations under International Financial Reporting Standards. This publication is available on the ASC website.

3.3 Minimum Disclosure Requirements and Disclosure of Additional Information

Form 51-101F1 sets out the minimum disclosure requirements for an RI engaged in oil and gas activities. General Instruction (5) of Form 51-101F1 states that an RI may provide additional information that isn't required, provided:

[T]hat it is not misleading and not inconsistent with the requirements of NI 51-101, and provided that material information required to be disclosed is not omitted...

Furthermore, section 2.3 of 51-101CP states:

A reporting issuer may supplement the annual disclosure required under NI 51-101 with additional information corresponding to that prescribed in Form 51-101F1, Form 51-101F2 and Form 51-101F3, but as at dates, or for periods, subsequent to those for which annual disclosure is required. However, to avoid confusion, such supplementary disclosure should be clearly identified as being interim disclosure and distinguished from the annual disclosure (for example, if appropriate, by reference to a particular interim period). Supplementary interim disclosure does not satisfy the annual disclosure requirements of section 2.1 of NI 51-101.

Section 2.7(8) of 51-101CP reiterates this and states:

*To the extent that additional, or more detailed, disclosure can be expected to assist readers in understanding and assessing the mandatory disclosure, it is encouraged. Indeed, to the extent that additional disclosure of *material* facts is necessary in order to make mandated disclosure not misleading, a failure to provide that additional disclosure would amount to a misrepresentation.*

4. Petroleum Advisory Committee

The Petroleum Advisory Committee (PAC) is an important source of information and advice for the ASC. PAC is comprised of volunteer members (Members) drawn from oil and gas and related industries and appointed to three-year terms. Meetings are normally held three or four times per year and are attended by Members, observers and select ASC staff. PAC's mandate is to:

- review and provide advice and opinions on issues, trends and current developments relating to the evaluation and disclosure of oil and gas reserves and resources other than reserves;
- provide comment on current and proposed Alberta securities laws and regulatory policies in this area; and
- provide advice to staff on an informal basis.

Topics discussed in the last year include a post-implementation assessment of the Amendments which incorporated observations and comments attributed to staff, PAC and capital market participants (no systemic issues were identified, although future amendments to NI 51-101 and its related forms and changes to 51-101CP, are being considered), disclosure of abandonment and reclamation costs, disclosure of product types, and updating the COGE Handbook.

The ASC thanks the Members for their contribution.

Current Members:

Caralyn P. Bennett, P.Eng.

GLJ Petroleum Consultants Ltd.

David P. Carey, P.Eng., MBA

Retired

Chris Fong, P.Eng.

Retired

Harry Helwerda, P.Eng., FEC

Retired

Dr. John Lacey, P.Eng.

John R. Lacey International Ltd.

Keith McCandlish, P.Geol., P.Geo.

DMT Geosciences Ltd.

Ian McDonald, P.Eng.

Nexen Energy ULC

Jeff Meunier, P.Eng.

RBC Capital Markets

Rob Morgan, P.Eng.

Crew Energy Inc.

James Surbey, B.Eng., LLB

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