

DECEMBER 2018

Oil and Gas Review

ASC
Alberta Securities Commission



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Investors must have
access to timely and
accurate information.

The Alberta Securities Commission is the lead oil and gas regulator within the Canadian Securities Administrators, and we are proud to represent and work within this sector.

An important part of a fair and efficient capital market is high-quality corporate reporting. It promotes investor confidence and provides valuable information that enables investors to make informed investment decisions. The oil and gas industry is a critical economic driver for all of Canada, and it has been experiencing unprecedented market access, pricing, regulatory and policy challenges. Given the pressures already influencing oil and gas investors, the importance of getting corporate disclosure right is more important than ever.

The oil and gas review report is prepared annually by the ASC's Petroleum group within the Corporate Finance division. This group is comprised of experienced and knowledgeable oil and gas professionals who understand the challenges currently facing the industry and who are dedicated to protecting investors and assisting reporting issuers in meeting their compliance requirements.

With continuing tough times and some unprecedented circumstances in Alberta's capital markets, our objective with this Report is to provide useful and straightforward guidance that makes it easier for issuers to achieve good disclosure – we know your time and resources are valuable. Our Corporate Finance division is here to assist you in any way we can. Please feel free to contact me or my colleagues identified in this Report with any feedback or questions. I look forward to seeing many of you at our information session on February 5, 2019.

Regards,

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Each year the ASC issues four reports, created to provide timely and relevant information for market participants and reporting issuers. These reports include the annual report, the Alberta capital markets report, the oil and gas review and the corporate finance disclosure review. These reports can be found at www.albertasecurities.com.

1. Introduction

1.1 GENERAL

The Alberta Securities Commission (**ASC**) administers Alberta's securities laws and is the lead regulator on oil and gas matters within the Canadian Securities Administrators (**CSA**), the umbrella group of Canada's securities regulators. Alberta's securities laws are established under the *Securities Act* (Alberta), which is designed to ensure that the province's capital market operates fairly and efficiently. To achieve this, investors must have access to timely and accurate information. Disclosure from reporting issuers (**RIs**) must be effective and compliant, based upon the provision of balanced, authentic, relevant and reliable information. Key activities conducted by the ASC regarding its oil and gas responsibilities include the review of oil and gas disclosure, development and maintenance of oil and gas disclosure requirements and policy, and communication with capital market participants.

The ASC's Corporate Finance division publishes the Oil and Gas Review Report (**Report**) annually. The Report is intended to assist RIs in disclosure preparation and consists of:

- Observations and analyses attributed to disclosure from issuers that report under National Instrument 51-101 *Standards of Disclosure For Oil and Gas Activities* (**NI 51-101**), which sets out both the general disclosure standards and specific annual disclosure requirements for RIs engaged in oil and gas activities.
- Insight concerning Alberta's capital market.
- Information regarding select regulatory topics.

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

Specific circumstances may necessitate the filing of:

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

NI 51-101 requires oil and gas disclosure to be prepared in accordance with the Canadian Oil and Gas Evaluation Handbook (**COGE Handbook**). Per section 1.1 of NI 51-101, the COGE Handbook is amended from time to time and disclosure must be compliant with it upon publication of changes. An amended COGE Handbook was published on October 18, 2018. It is distributed online by the SPEE (Calgary Chapter) (www.speecanada.org). Please note that NI 51-101 and its related forms, Companion Policy 51-101CP *Standards of Disclosure For Oil and Gas Activities* (**51-101CP**) and various staff notices, were not concurrently amended.

1.2 EXECUTIVE SUMMARY

A priority of the ASC's Petroleum group is the review of disclosure for compliance with securities regulations, specifically NI 51-101 and related forms. These reviews incorporate both general and required annual disclosure. While RIs' oil and gas disclosure is generally compliant, this Report contains observations and analyses concerning key areas identified by staff for improvement, along with general commentary and statistics concerning Alberta's capital market, and information regarding select regulatory topics.

Areas identified for improvement are based primarily on reviews of 2018 disclosure representing oil and gas activities conducted in 2017. These involve:

- **Development timing for undeveloped reserves**
 - Disclosure regarding item 5.1 of Form 51-101F1, which requires discussion of plans (including timing) for developing proved undeveloped and probable undeveloped reserves.
- **Properties with no attributed reserves**
 - Disclosure regarding item 6.2 of Form 51-101F1, which concerns unproved properties.
- **Reserves reconciliations**
 - Disclosure regarding item 4.1 of Form 51-101F1, which requires annual disclosure of changes in reserves estimates.
- **Ceasing to engage in oil and gas activities**
 - Disclosure regarding section 6.2 of NI 51-101, which requires an RI ceasing to engage in oil and gas activities to file a notice to this effect within a specified time period.

The select regulatory topics include:

- the term “qualified reserves evaluator”
- the terms “preparation date” and “effective date”
- abandonment and reclamation costs
- forward contracts.

1.3 DISCLOSURE – INTRODUCTION

The Canadian oil and gas industry has been shaped and guided by numerous influences, be they technological, economic, financial, regulatory, political, environmental or social. The pace of change in recent years has been extraordinary. Considering technology as an example, the relatively recent widespread adoption of costly and complex horizontal wells coupled with multi-stage hydraulic stimulations has largely supplanted traditional lower cost and simple vertical wells. In addition, capital intensive enhanced recovery schemes have been developed and applied to new and old reservoirs alike. All told, these have resulted in such things as:

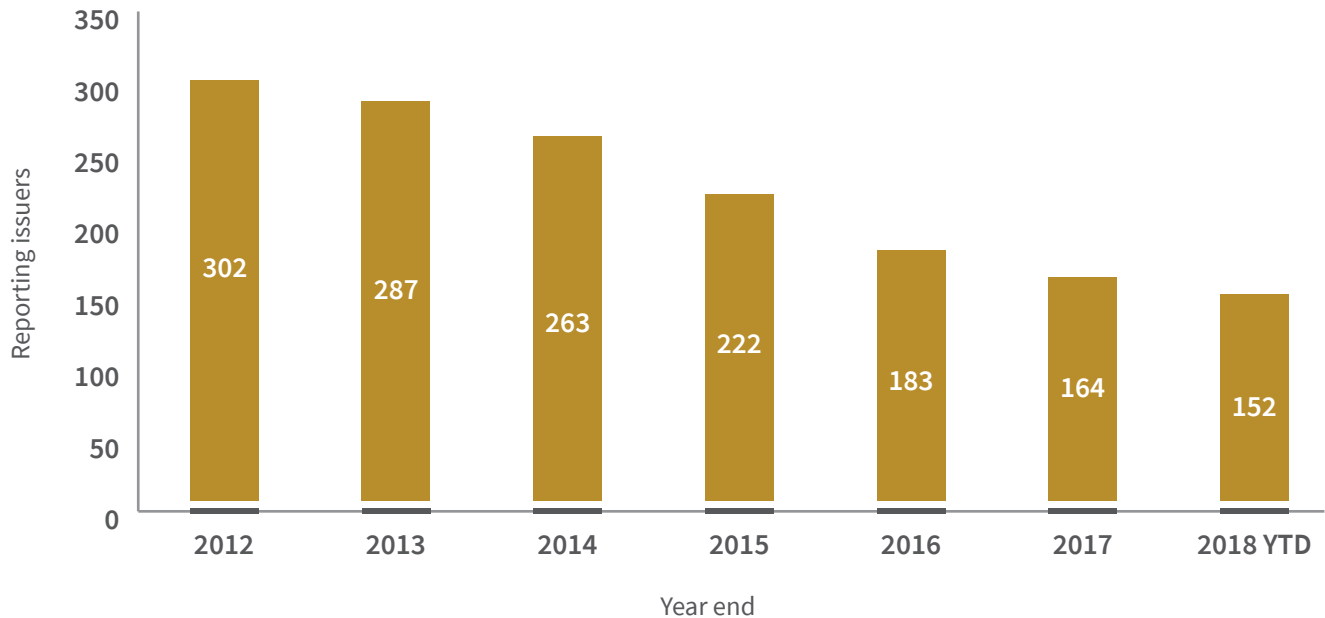
- Significant increases in the amount of recoverable hydrocarbons.
- Increased production.
- A need for additional transportation, particularly for egress from Western Canada.
- Larger capital requirements.
- Updated oil and gas guidance via the COGE Handbook and disclosure requirements, guidance and staff notices published by the CSA and ASC.

At the same time, there has been increased regulatory, political, environmental and social scrutiny, which has resulted in:

- Protracted development schedules for oil and gas reserves.
- Delays and cancellations regarding transportation and other infrastructure.
- Reduced investor interest.
- Reduced access to investment capital.
- A sharp decrease in the number of reporting issuers engaged in oil and gas activities.

Illustrating this reporting issuer decrease, Figure 1 shows there were 164 RIs principally regulated by the ASC and actively engaged in oil and gas activities at the end of 2017, down from 302 at the end of 2012. By the end of September 2018, this number was further reduced to 152, representing an almost 50 per cent decrease since 2012.

FIGURE 1: NUMBER OF OIL AND GAS REPORTING ISSUERS PRINCIPALLY REGULATED BY THE ASC



This reduction has disproportionately affected smaller RIs. Figure 2 illustrates the change in the number of RIs by size from the end of 2014 to the end of September 2018. Per disclosure under item 6.9 of Form 51-101F1, the RIs are grouped as follows:

- seniors >100,000 barrels of oil equivalent (**BOE**) per day (based on a conversion ratio of six thousand cubic feet of gas for every one barrel of oil)
- intermediates 10,000 to 100,000 BOE per day
- juniors <10,000 BOE per day

The overall decline in RIs is attributed to a reduction in the number of junior RIs, with the tally of intermediate and senior RIs remaining relatively static over the period. The percentage of junior RIs to total RIs has decreased from 80 per cent in 2014 to 65 per cent at the end of September 2018.

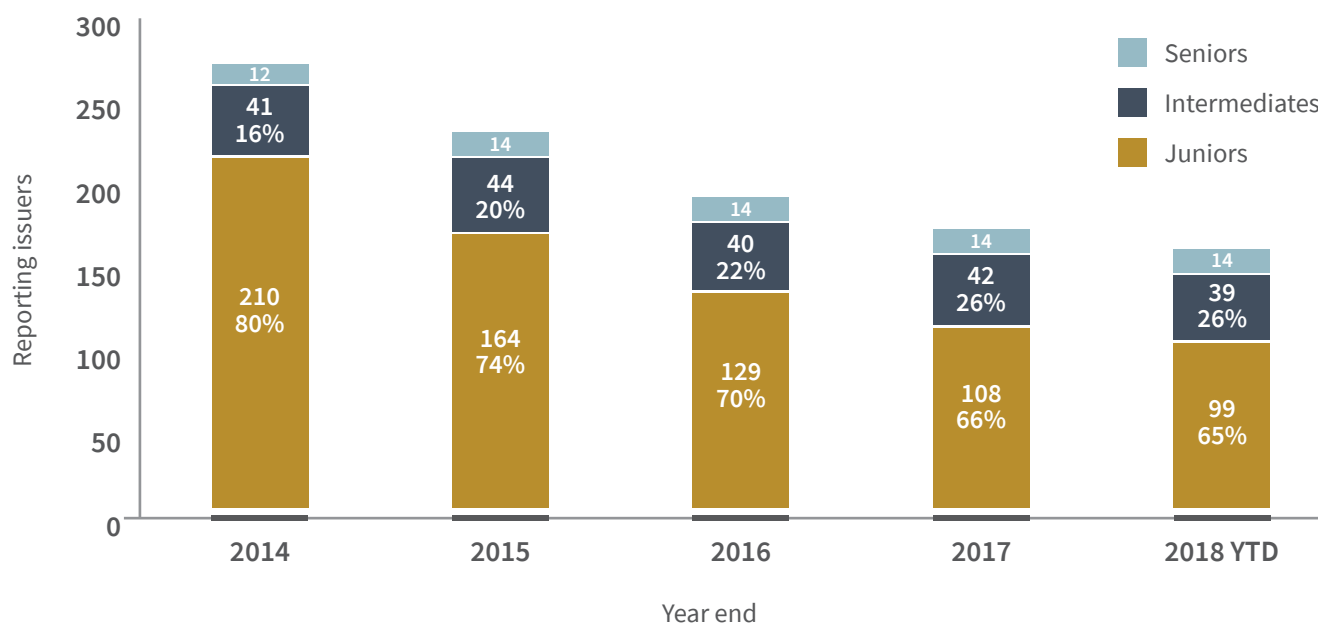
FIGURE 2: NUMBER OF OIL AND GAS REPORTING ISSUERS PRINCIPALLY REGULATED BY THE ASC BY SIZE

Figure 3 categorizes the reasons accounting for the loss of 12 RIs from the end of 2017 to the end of September 2018.

FIGURE 3: NET CHANGE IN OIL AND GAS REPORTING ISSUERS PRINCIPALLY REGULATED BY THE ASC

NUMBER OF REPORTING ISSUERS	REASON FOR CHANGE
(1)	CCAA/receivership/bankruptcy
(2)	change in industry/acquired by a company in another industry*
(1)	privatized/acquired by a company not principally regulated by the ASC
(7)	acquired by an RI principally regulated by the ASC**
1	new RI
(2)	Cease Trade Order
TOTAL	(12)

* Industry change to junior natural resource – mining

** Six were acquired by an RI engaged in oil and gas activities

Figure 4 shows the number of occurrences of disclosure of contingent resources data and prospective resources data in the statement of reserves data and other information specified in Form 51-101F1, from 2014 to 2017, inclusive. While disclosure occurrences increased in 2017 over 2016, overall there has been a decreasing trend since 2014.

FIGURE 4: OCCURRENCES OF CONTINGENT RESOURCES DATA AND PROSPECTIVE RESOURCES DATA DISCLOSURE BY REPORTING ISSUERS PRINCIPALLY REGULATED BY THE ASC

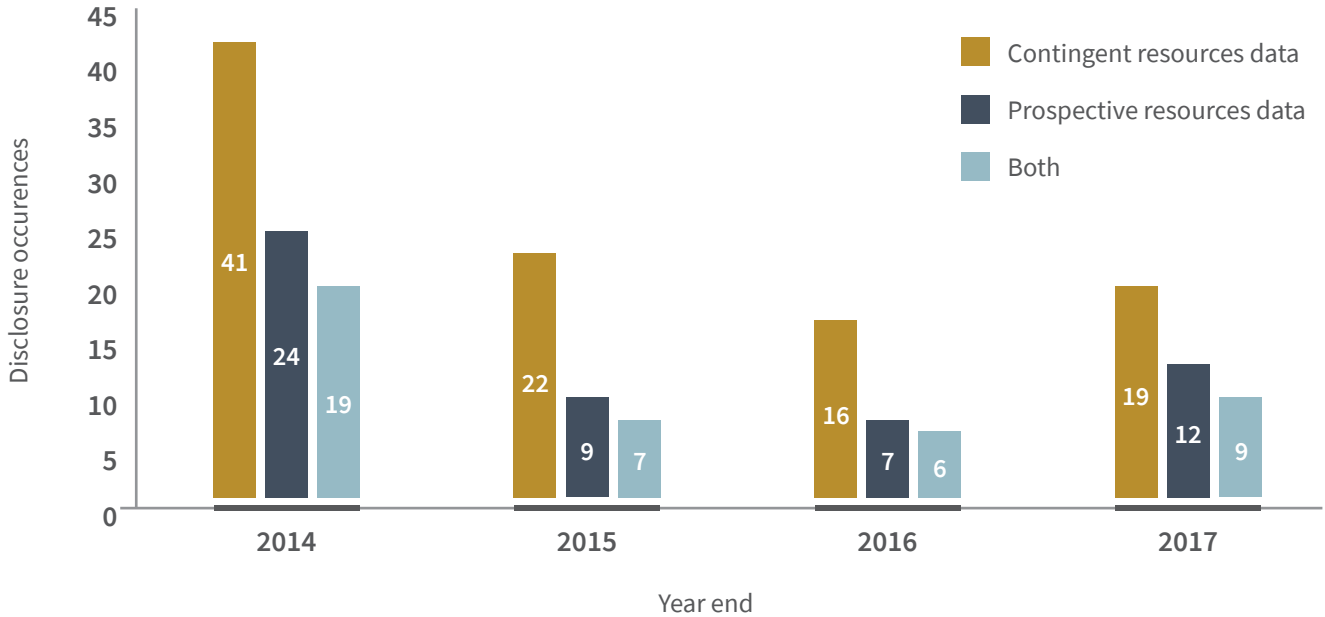


Figure 5 illustrates the change in disclosure of these by RI size.

FIGURE 5: OCCURRENCES OF CONTINGENT RESOURCES DATA AND PROSPECTIVE RESOURCES DATA DISCLOSURE BY SIZE OF REPORTING ISSUERS PRINCIPALLY REGULATED BY THE ASC

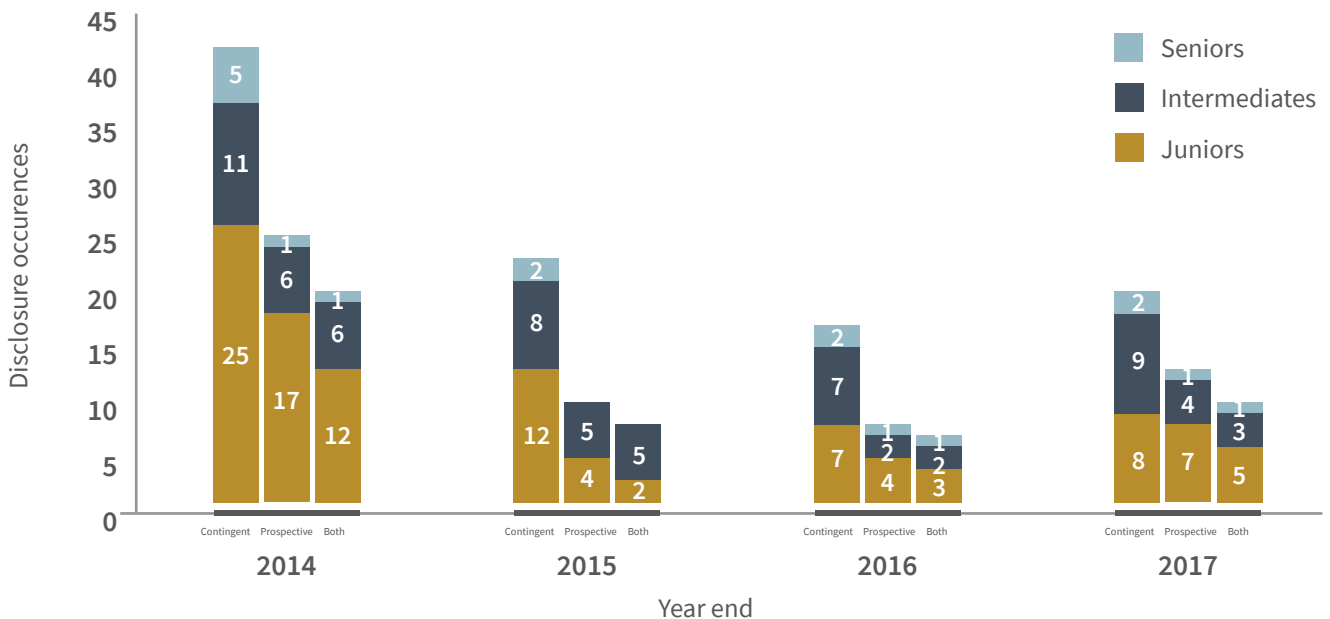
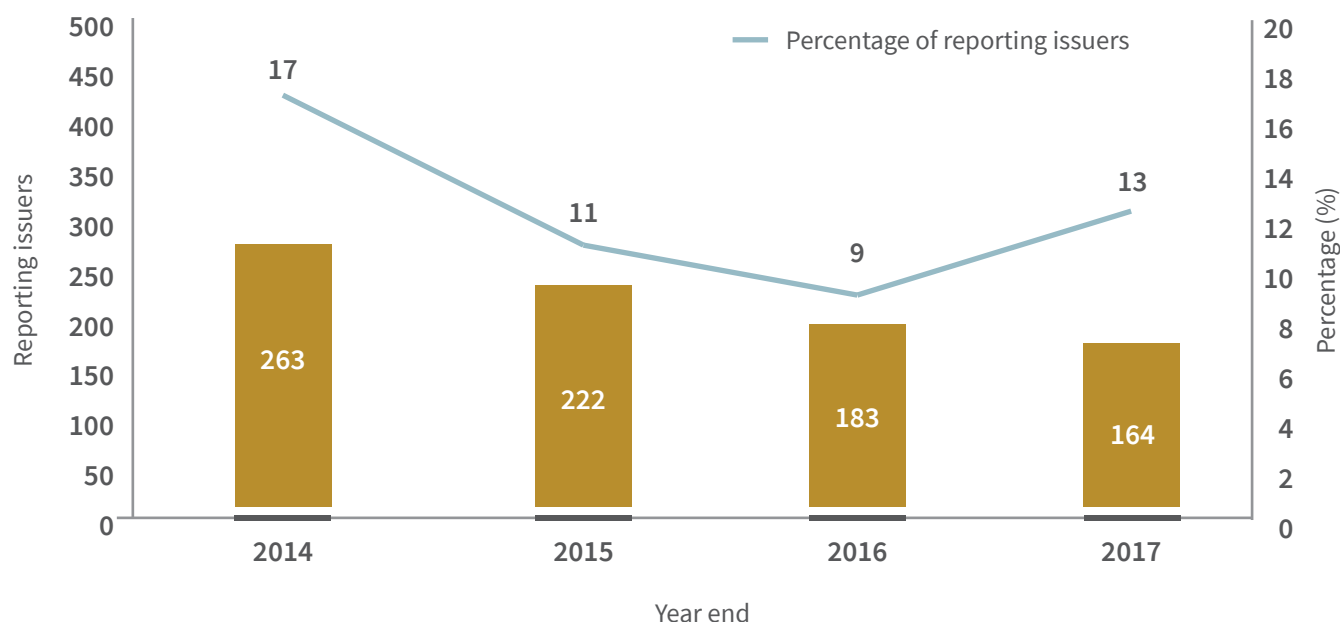


Figure 6 illustrates the percentage of RIs principally regulated by the ASC that disclosed contingent resources data and prospective resources data in the statement of reserves data and other information specified in Form 51-101F1, from 2014 to 2017, inclusive. As indicated, the percentage decline has outpaced the decline in the number of RIs over this time period.

FIGURE 6: PERCENTAGE OF REPORTING ISSUERS PRINCIPALLY REGULATED BY THE ASC THAT HAVE DISCLOSED CONTINGENT RESOURCES DATA AND PROSPECTIVE RESOURCES DATA



1.3.1 DISCLOSURE – REVIEW PROCESS

In its role as the lead regulator on oil and gas matters within the CSA, the ASC has a rigorous disclosure review process to assess compliance with oil and gas securities requirements. This process focuses primarily on disclosure from RIs principally regulated by the ASC and typically incorporates disclosure required by section 2.1 of NI 51-101 (which includes the statement of information specified in Form 51-101F1, and reports in accordance with Form 51-101F2 and Form 51-101F3). In addition, reviews often incorporate prospectuses, management discussion and analysis, press releases, investor presentations, websites, and evaluations of oil and gas reserves and resources other than reserves.

The Petroleum group conducts or participates in several types of reviews:

- **Screening**
 - incorporates annual filings, which include the statement of information specified in Form 51-101F1, and reports in accordance with Form 51-101F2 and Form 51-101F3
 - these may evolve into technical or continuous disclosure reviews
- **Press release**
 - incorporates other disclosure, as required
 - these may evolve into technical or continuous disclosure reviews

- **Technical**
 - incorporates evaluations of reserves and resources other than reserves and associated disclosure
- **Continuous disclosure**
 - incorporates all oil and gas disclosure
- **Prospectus**
 - includes short-form, long-form (IPO) and shelf prospectuses
 - incorporates other disclosure, as required

Specific circumstances help determine the outcome of each review. Outcomes include:

- no action taken
- advisory comment(s) intended to improve disclosure
- identification of deficiencies, including errors and omissions that may be misleading, with results that include:
 - requirement to correct deficiencies
 - issuer placed in default
 - management cease trade order
 - cease trade order
 - referral to the ASC Enforcement division

RIs that are uncertain whether their disclosure is compliant with the COGE Handbook, NI 51-101 or more generally, the *Securities Act* (Alberta), are encouraged to seek the advice of an appropriate professional advisor.

Please note that 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 materiality:

[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 examples of 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 SN 51-327).

2. Disclosure – overview

This section discusses key areas of disclosure identified by staff for improvement. It incorporates observations and analyses drawn primarily from staff’s reviews of 2018 disclosure attributed to oil and gas activities conducted by RIs in 2017.

2.1 DEVELOPMENT TIMING FOR UNDEVELOPED RESERVES

Concern: Inadequate disclosure regarding item 5.1 of Form 51-101F1, which requires discussion of the plans, including timing, for development of proved undeveloped reserves and probable undeveloped reserves.

Item 5.1(1)(b) states:

[D]iscuss generally the basis on which the *reporting issuer* attributes *proved undeveloped reserves*, its plans (including timing) for developing the *proved undeveloped reserves* and, if applicable, its reasons for deferring the development of particular *proved undeveloped reserves* beyond two years.

Item 5.1(2)(b) states:

[D]iscuss generally the basis on which the *reporting issuer* attributes *probable undeveloped reserves*, its plans (including timing) for developing the *proved undeveloped reserves* and, if applicable, its reasons for deferring the development of particular *proved undeveloped reserves* beyond two years.

Instruction (2) of item 5.1 states:

The discussion of a reporting issuer’s plans for developing undeveloped reserves, or the reporting issuer’s reasons for deferring the development of undeveloped reserves, must enable a reasonable investor to assess the efforts made by the reporting issuer to convert undeveloped reserves to developed reserves.

Staff emphasize that the required discussion must be meaningful and specific to the RI’s circumstances.

The recently amended COGE Handbook discusses development timing for undeveloped reserves. Section 1.4.7.2.1.8 states:

For Undeveloped Reserves, development should normally proceed within five years **unless there is appropriate justification with adequate explanation**. The evaluator should review Undeveloped Reserves estimates if development has not proceeded as the operator had previously planned. Reserves should be converted to Contingent Resources if development is delayed beyond five years of the intended timeline unless there is compelling justification and clear explanations by the company.

For large projects, where significant capital is required for field development or infrastructure construction, significant capital expenditures should commence within three years for assignment of Proved Undeveloped Reserves. For the assignment of Probable Undeveloped Reserves, significant capital spending should commence within five years. If significant capital expenditures do not occur within these times, the associated oil and gas quantities should be classified as Contingent Resources.

The above section of the COGE Handbook also provides examples of situations in which it may be appropriate to exceed this development timing guidance. However, in the absence of compelling rationale (provided in the evaluation itself), staff expect development timing to be aligned with the guidance provided above. If compelling rationale exists and is used to justify development timing guidance, it may be appropriate to include it within the disclosure required by items 5.1(1)(b) and 5.1(2)(b), and perhaps within the disclosure required by item 5.2 of Form 51-101F1. The latter concerns identification and discussion of significant factors or uncertainties that affect certain components of the reserves data disclosed in Form 51-101F1.

When evaluations of reserves are reviewed by staff, support documentation is specifically sought in instances in which development timing exceeds guidance in the COGE Handbook. An absence of clear documentation may result in an evaluation being considered to have not been prepared in accordance with the COGE Handbook. Disclosure of information from such an evaluation would not be permitted.

✕ EXAMPLE THAT DID NOT MEET OUR EXPECTATIONS

Development of the company's undeveloped reserves is expected to occur over the next five to 10 years. This timing may change based upon factors that include commodity prices, capital availability, facility access, regulatory approval and new geological and engineering data.

Staff's concerns with this disclosure include:

- *The disclosure does not differentiate proved undeveloped reserves from probable undeveloped reserves, as required by item 5.1.*
- *The disclosure is not meaningful and specific to the circumstances of the RI, such that it would enable a reasonable investor to assess the efforts made by the RI to convert undeveloped reserves to developed reserves, as discussed in instruction (2) of item 5.1.*
- *The reasons for the RI deferring development of the proved undeveloped reserves and probable undeveloped reserves beyond two years, as required by item 5.1, are absent.*
- *The factors that may impact development timing that are provided by the RI directly influence project commerciality. In order for reserves to be assigned, a project must be commercial. Staff are concerned that reserves may have been assigned that should not have been.*

Of additional interest, production timing regarding developed non-producing reserves is discussed in section 1.4.7.2.1.8 of the COGE Handbook, which states:

Developed Non-Producing Reserves that are near existing infrastructure and require minor capital should normally be put on production within a one to three-year period. Exceptions are Developed Non-Producing Reserves awaiting depletion of another producing zone in the same wellbore or where production levels are constrained by facility or market limitations.

Furthermore, Appendix A – Glossary of the COGE Handbook states within the definition of the term “commercial”:

[...]A reasonable time frame for the initiation of development depends on the specific circumstances and varies according to the scope of the project. Although five years is recommended as a maximum time frame for classification of a project as commercial, a longer time frame could be applied where, for example, development of economic projects are deferred at the option of the producer for, among other things, market-related reasons or to meet contractual or strategic objectives.

2.2 PROPERTIES WITH NO ATTRIBUTED RESERVES

Concern: Inadequate disclosure regarding properties with no reserves attributed (unproved properties), per item 6.2 of Form 51-101F1. These concerns include disclosure regarding unproved properties mixed with that of proved properties, an absence of the gross or net area in which the RI has an interest and generic or absent disclosure regarding work commitments.

Per item 6.2:

1. For *unproved properties* disclose:
 - (a) the *gross area* (acres or hectares) in which the *reporting issuer* has an interest;
 - (b) the interest of the reporting issuer therein expressed in terms of net area (acres or hectares);
 - (c) the location, by country; and
 - (d) the existence, nature (including any bonding requirements), timing and cost (specified or estimated) of any work commitments.
2. Disclose, by country, the *net area* (acres or hectares) of *unproved property* for which the *reporting issuer* expects its rights to explore, develop and exploit to expire within one year.

CSA Staff Notice 51-324 *Revised Glossary to NI 51-101 Standards of Disclosure For Oil and Gas Activities (CSA SN 51-324)* defines unproved property as:

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

While proved property is defined as:

A property or part of a property to which reserves have been specifically attributed.

Section 1.1 of NI 51-101 defines reserves as:

Proved, probable or possible reserves;

With this in mind, item 6.2(1) can be simplified to require RIs to disclose information regarding properties or parts of properties that do not have proved, probable or possible reserves assigned.

It is common for disclosure to incorporate undifferentiated information from both unproved properties and proved properties. If an RI chooses to provide disclosure regarding proved properties, it must ensure that it includes the required disclosure for unproved properties and the information must be appropriately differentiated.

CSA SN 51-324 defines gross in relation to properties as:

[...][T]he total area of properties in which a reporting issuer has an interest.

While net in relation to properties is defined as:

[...][T]he total area in which the *reporting issuer* has an interest multiplied by the working interest owned by the *reporting issuer*.

Staff regularly observe an absence of either the gross or net area, although disclosure of each is required per items 6.2(a) and 6.2(b), respectively. In addition, disclosure concerning work commitments under 6.2(1)(d) is frequently absent or generic in nature, as is that concerning expiration of the rights to explore, develop and exploit within one year, as discussed in item 6.2(2).

2.3 RESERVES RECONCILIATIONS – GENERAL

Concern: Inadequate disclosure regarding reserves reconciliations per item 4.1 of Form 51-101F1. Specific concerns include mismatched opening and closing balances, negative volumes for particular reserve change categories, erroneous technical revisions, erroneous reserves additions through acquisitions due to the use of incorrect reserves acquisition dates, incorrect production volumes, missing or inconsistent units of measure, the use of incorrect reserve change categories and an absence of explanations regarding disclosure in each reserve change category.

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 disclosure is required by country, product type specified in item 4.1(2)(b) and reserve change category specified in item 4.1(2)(c). In addition, item 4.1(2)(c) requires an explanation concerning disclosure that occurs in each reserve change category.

Product types specified in item 4.1(2)(b) are:

- (i) *bitumen*;
- (ii) *coal bed methane*;
- (iii) *conventional natural gas*;
- (iv) *gas hydrates*;
- (v) *heavy crude oil*;
- (vi) *light crude oil and medium crude oil combined*;
- (vii) *natural gas liquids*;
- (viii) *shale gas*;
- (ix) *synthetic crude oil*;
- (x) *synthetic gas*;
- (xi) *tight oil*;

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*.

The required reconciliation compares reserves data at the effective date for the current financial year with the corresponding estimates at the last day of the preceding financial year. This is the “opening balance” of the reconciliation. The “closing balance” is the result of this comparison.

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;

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

Appendix A – Glossary of the COGE Handbook defines infill well as:

A well (or wells) that is drilled within a known accumulation.

Guidance regarding reserves reconciliations is provided in section 4.6.2 of the COGE Handbook.

Staff note the following common disclosure deficiencies with respect to the reserves reconciliation required by item 4.1:

- **Opening balance** – Volumes for the current year don’t 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 categories, subsequent changes should be identified as either technical revisions or economic factors, except as noted in section 4.6.2.4 of the COGE Handbook. There cannot be negative volumes in these reserve change categories.
- **Technical revisions** – The erroneous recording of negative volumes that exceed 100 per cent of the opening balance. It is impossible to remove a volume of reserves in excess of the opening balance through a technical revision.
- **Acquisitions** – The use of incorrect dates to account for reserves additions through acquisitions. As stated previously, reserves are reconciled at the effective date for the current financial year.

Consistent with this, section 2.7(6)(c) of 51-101CP states that the date to reconcile changes in acquired reserves is the effective date, which is the effective date of the RI’s most recent financial year:

[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.

Changes in reserves estimates subsequent to the acquisition date of the reserves are to be accounted for in the appropriate individual reserve change category. The reasons for these changes should be provided in a footnote, for all categories other than “acquisitions” and “production.” Staff suggest that these explanations be considered alongside the explanations required by item 4.1(2)(c) of Form 51-101F1.

The term “acquisition date” is not defined nor clarified in NI 51-101 and related forms, 51-101CP or staff notices. However, staff consider it to mean the date at which the RI has attained a direct or indirect ownership, working or royalty interest in reserves. Ownership is discussed in section 1.4.4.2 of the COGE Handbook.

In summary, the reserves estimate to be used in the reserve change category “acquisitions” is the sum of:

- The estimates of the reserves data by product type attributed to the acquisition at the effective date of the current financial year.
- The production by product type that has occurred from the acquisition, accrued from the date ownership was attained to the effective date for the current financial year.

Although reserves estimates may be determined at any point during a financial year, reserves are only reconciled for the purposes of item 4.1 at the last day of the most recent financial year.

The individual steps to prepare the required reconciliation are:

1. Evaluate all of the RI's reserves data at the effective date for the most recent financial year. This evaluation will include the properties acquired during the most recent financial year.
 2. Determine the RI's share of the gross production volume, by product type, derived from the acquired properties. This includes production that has occurred from the date that ownership of the reserves was attained to the effective date of the most recent financial year.
 3. Add the results from step 2 to those from step 1. This exercise is mechanical and is not impacted by the presence or absence of an evaluation of the acquired reserves at or around the date that ownership of the reserves was attained.
 4. Enter the results from step 3 into the reconciliation table under reserve change category "acquisitions" respecting the appropriate product type.
- **Production** – Volumes don't match those disclosed under item 6.9(1)(a) of Form 51-101F1. These should match.
 - **Closing balance** – Volumes don't match those disclosed under item 2.1(1) of Form 51-101F1. These should match.
 - **Units of measure** – These are missing or inconsistent. Although no particular unit of measure is specified in Form 51-101F1, consistency of units is addressed in general instruction (8), which advises against switching between Imperial units and Système International (SI) units, without a compelling reason. If switching does occur, staff encourages disclosure of the reason.
 - **Reserve change categories** – The use of categories not specified in item 4.1(2)(c) or instruction (4) of item 4.1 of Form 51-101F1. An RI must use the specified categories and, if necessary, explain unusual circumstances. Please note that although section 4.6.2.2 of the COGE Handbook provides recommended "change categories" (equivalent to "reserve change categories"), not all change categories have equivalent reserve change categories.
 - **Explanations** – The absence of details accompanying 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 explanations, changes may occur that cannot be easily understood. Examples of this include a scenario in which a large technical revision, an acquisition, or a re-categorization of reserves occurs (for example, probable reserves to proved reserves). In the absence of an explanation, the re-categorization could go unnoticed if the proved plus probable reserves (in total) otherwise 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. Remember, the opening balance of the reserves reconciliation is equivalent to the estimates at the last day of the preceding financial year, known as the closing balance. If an RI had reserves at the effective date of their preceding financial year, but a reserves evaluation is not available, there are no estimates available for the opening balance. As a zero opening balance is not appropriate in such a situation, a reconciliation cannot be undertaken. Instead, the RI is required to disclose the reason for the absence of the reconciliation.

Additional information concerning preparation of the reserves reconciliation is provided in 51-101CP. Section 2.7(6)(a) discusses a scenario in which an RI reports reserves for its current 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 is zero because the RI didn't have reserves. It is not because the RI has reserves but no available evaluation, as discussed previously. Section 5.10(4) of 51-101CP discusses reserves reconciliations with respect to initial public offerings.

2.3.1 RESERVES RECONCILIATIONS – ANALYSIS

Figure 7 (below) presents grouped reconciliations of summed gross proved plus probable reserves (in total) disclosed in 2018 by RIs principally regulated by the ASC. This disclosure regards activities conducted primarily in 2017. While generalized, the purpose of these figures is to illustrate and facilitate the assessment of changes, trends and quality of reserves estimates disclosed by RIs of similar size. The following steps were followed to generate these reconciliations:

- All RIs were ranked by their share of annual average gross daily production volumes. This was based on disclosed quarterly production for each RI's most recent financial year, by country and product type. This disclosure requirement is discussed in item 6.9 of Form 51-101F1.
- The ranked RIs were grouped as follows:
 - seniors >100,000 BOE per day
 - intermediates 10,000 to 100,000 BOE per day
 - juniors <10,000 BOE per day
- The highest ranked RIs were selected from each group incorporating 10 senior, 20 intermediate and 50 junior RIs.
- 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 2017 (the closing balance of 2016) and the closing balance of 2017 for gross proved plus probable reserves (in total) was calculated. The results are presented in Figure 7. Positive and negative changes plot to the right and left of the opening balance (denoted as 0 per cent), respectively.

FIGURE 7: 2017 RECONCILIATIONS OF GROSS PROVED PLUS PROBABLE RESERVES (IN TOTAL) BY REPORTING ISSUER GROUP

Figure 7a: Seniors

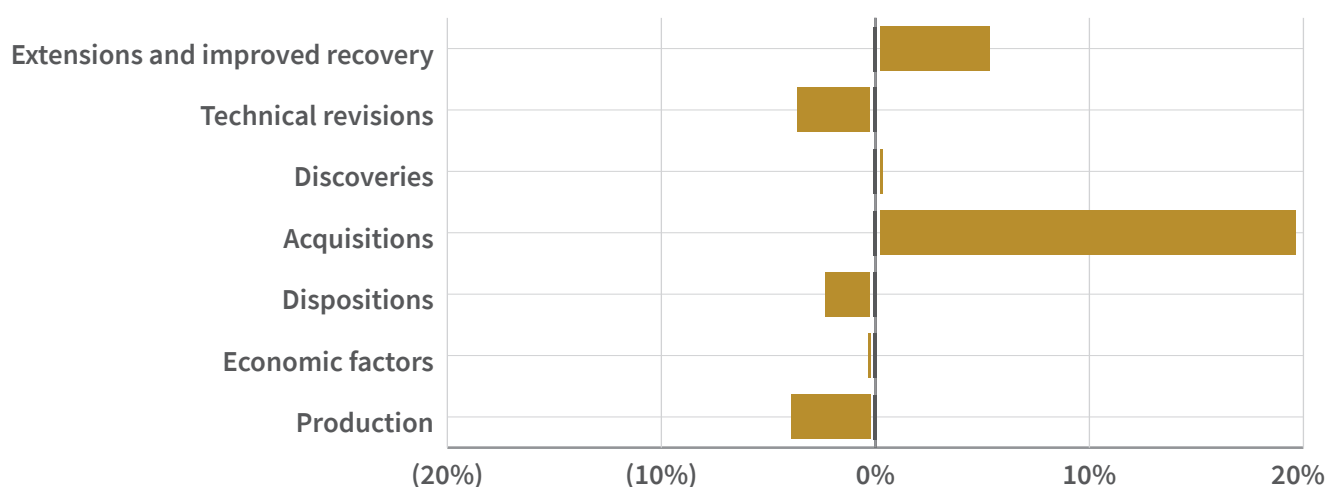


Figure 7b: Intermediates

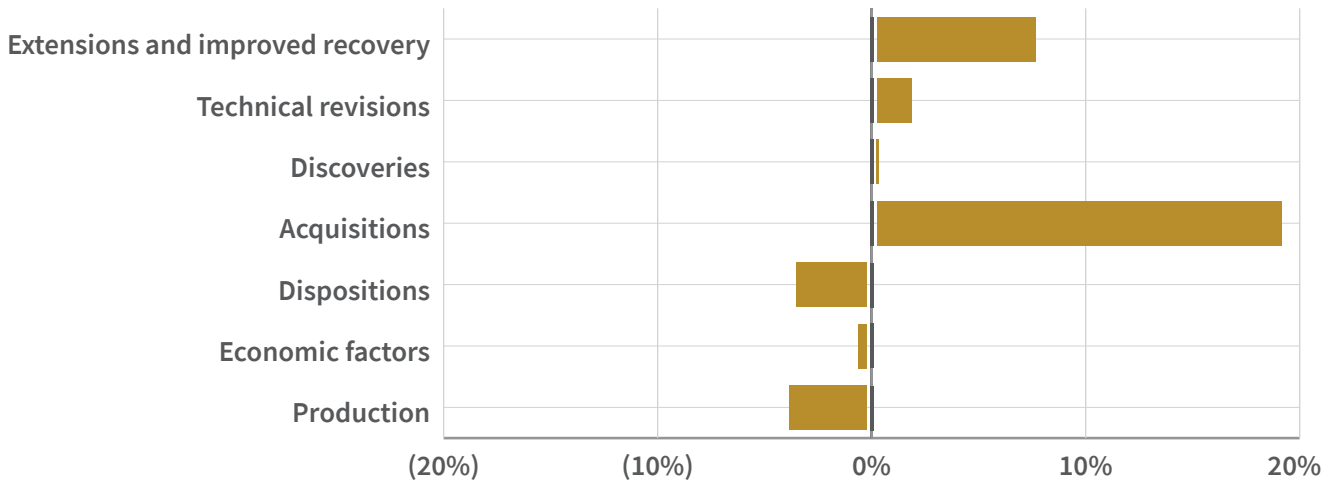
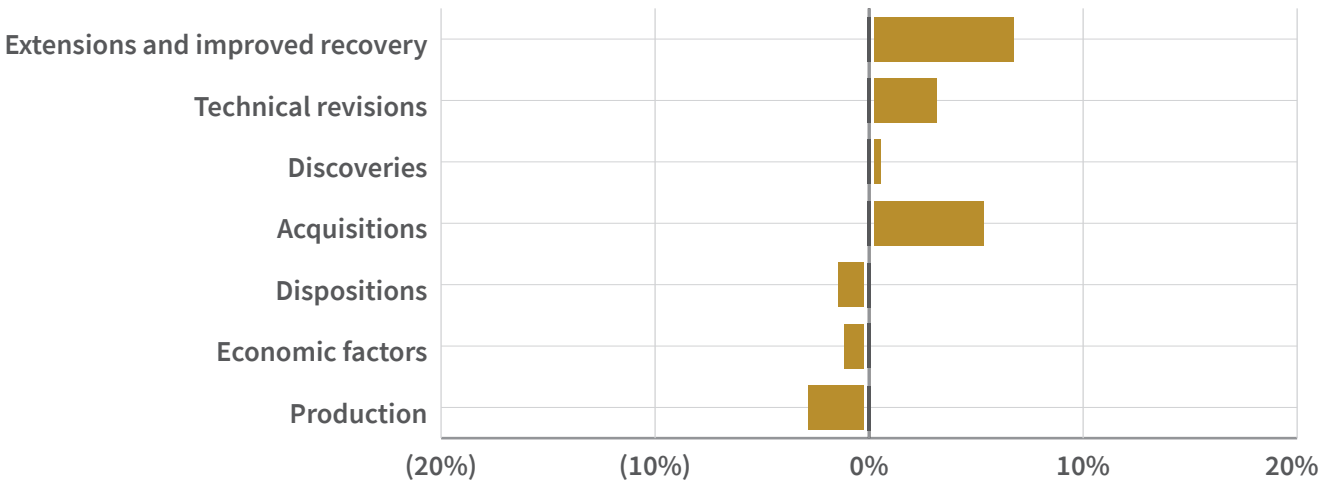


Figure 7c: Juniors



As illustrated in Figure 7, changes in extensions and improved recovery range from 5 per cent for the seniors to 7 per cent for both the intermediates and juniors.

Regarding technical revisions, positive and negative 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 the COGE Handbook, proved reserves should be adjusted positively over time, while proved plus probable reserves should remain relatively constant. Technical revisions in Figure 7 are neutral for all groups, ranging from negative 3 per cent for the seniors and juniors to 2 per cent for the intermediates. Three senior, three intermediate and two junior RIs disproportionately influence the technical revisions in their respective groups, with two RIs accounting for 81 per cent of the change for the juniors.

Discoveries are negligible for all groups, which is unsurprising, due to the ongoing shift away from exploratory activities in recent years and an increasing emphasis on activities related to extensions and improved recovery and acquisitions. As a result, the change in discoveries is limited to a small group in each category: Two RIs account for 96 per cent of the seniors' discoveries, two RIs account for 100 per cent of the intermediates' discoveries, and three RIs account for 97 per cent of the juniors' discoveries. Four seniors, two intermediates and six juniors recorded discoveries.

Acquisitions increased substantially compared with last year's report for both the seniors and intermediates, and decreased for the juniors. Changes range from 19 per cent for both the seniors and intermediates to 5 per cent for the juniors. Two senior RIs account for 91 per cent of the acquisitions for the group, while three account for 90 per cent for the intermediates and one accounts for 77 per cent for the juniors. Nine seniors, 14 intermediates and 15 juniors recorded acquisitions.

Changes in dispositions range from negative 2 per cent for the seniors to negative 3 per cent for the intermediates and negative 1 per cent for the juniors. Three senior RIs account for 97 per cent of the group's dispositions, while three account for 76 per cent for the intermediates and three account for 97 per cent for the juniors. Eight seniors, 14 intermediates and six juniors recorded dispositions.

All three groups show small negative adjustments for economic factors.

2.3.2 RESERVES RECONCILIATIONS – CHANGES OVER TIME

Figures 8 through 10 illustrate changes in the reserve change categories extensions and improved recovery, discoveries and technical revisions, for each group of RIs from 2014 to 2017, inclusive, for gross proved plus probable reserves (in total). While generalized, the purpose is to illustrate the changes in reserves in each reserve change category over time.

FIGURE 8: EXTENSIONS AND IMPROVED RECOVERY FOR GROSS PROVED PLUS PROBABLE RESERVES (IN TOTAL)

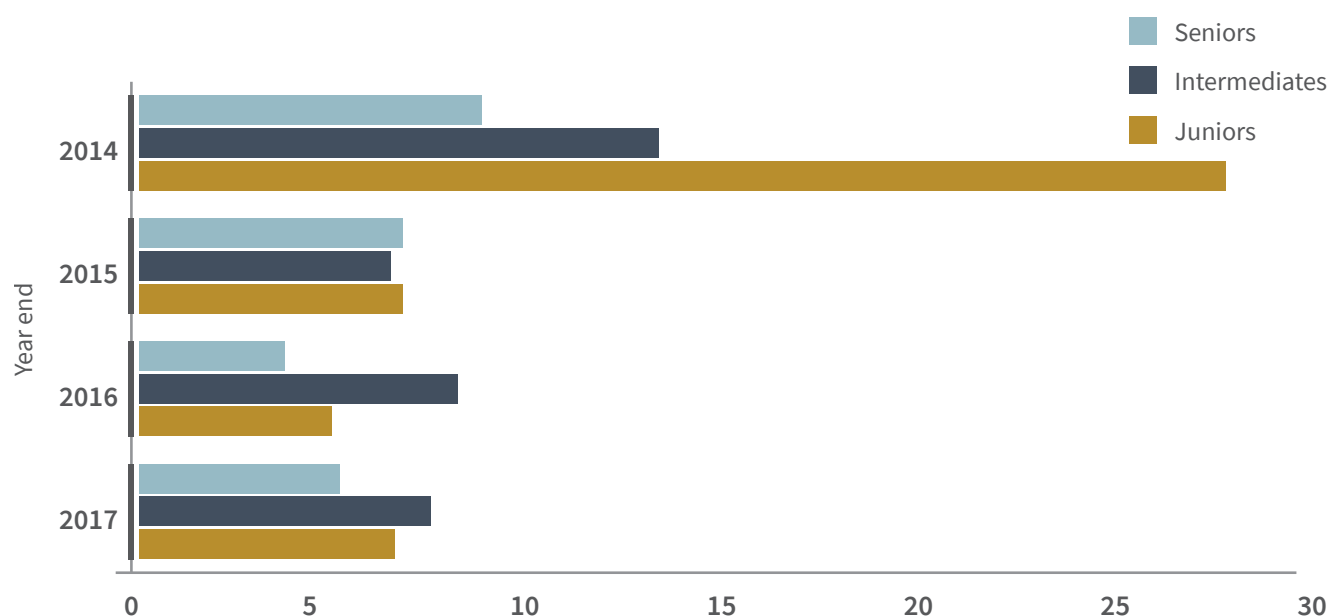


FIGURE 9: DISCOVERIES FOR GROSS PROVED PLUS PROBABLE RESERVES (IN TOTAL)

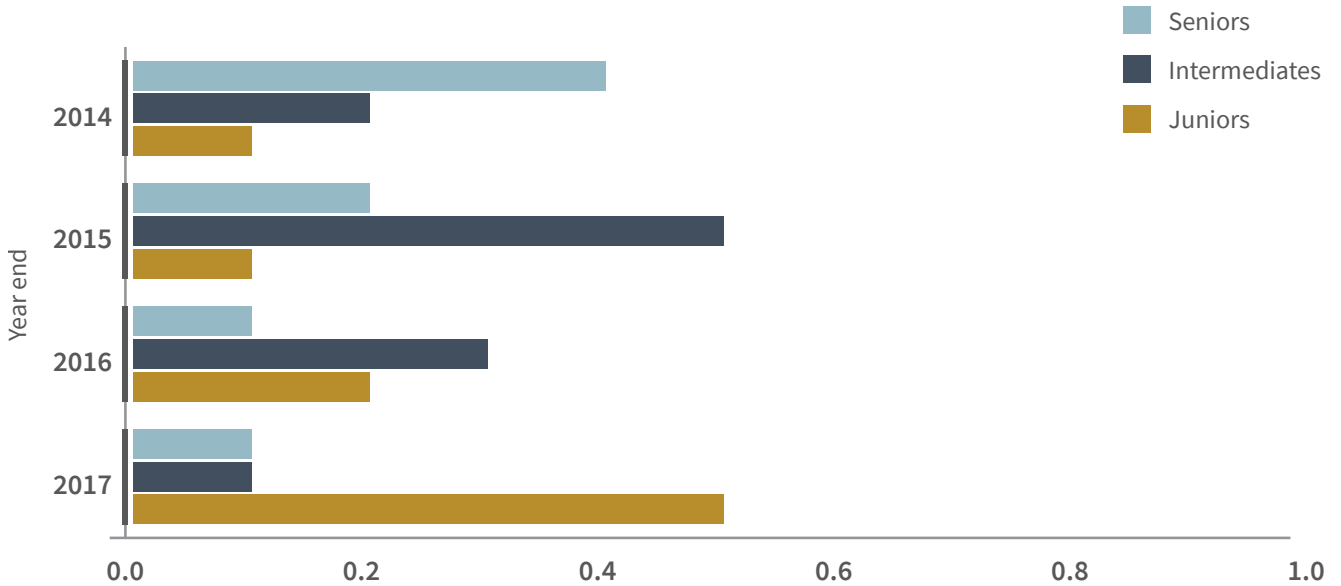
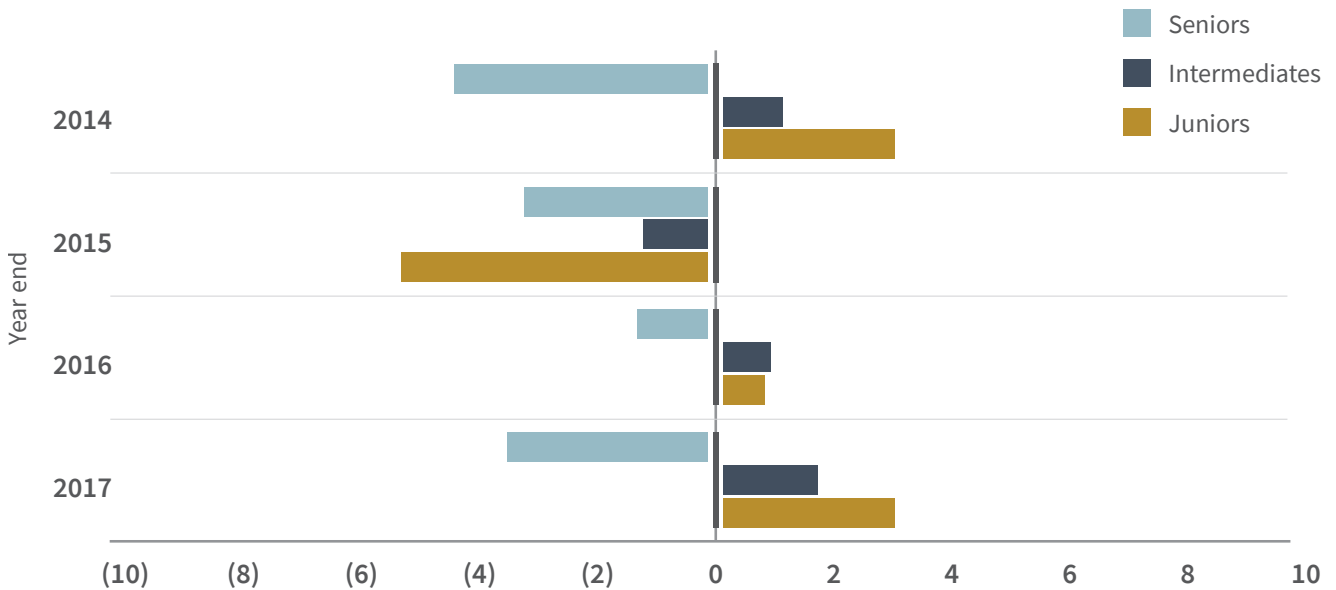


FIGURE 10: TECHNICAL REVISIONS FOR GROSS PROVED PLUS PROBABLE RESERVES (IN TOTAL)



2.3.3 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 over time. In particular, the technical revisions reserve change category can provide insight regarding whether or not estimates have been meeting the certainty levels for particular reserves categories. These are described in section 1.3 of the COGE Handbook.

Figure 10 (above) illustrates technical revisions of gross proved plus probable reserves (in total) for each group of RIs for 2014 through 2017. While a long-term analysis regarding the quality of reserves data cannot be conducted due to the limited data set, some preliminary conclusions can be drawn. Although the reserves quality varies for individual RIs within each group, the estimates appear to be high quality overall, with gross proved plus probable (in total) estimates remaining relatively constant. The ASC will continue to pay particular attention to negative technical revisions in its future reviews of disclosure.

2.4 CEASING TO ENGAGE IN OIL AND GAS ACTIVITIES

Concern: Inadequate or erroneous disclosure concerning notices prepared in accordance with Form 51-101F5. This includes an RI neglecting to file the required notice; an RI failing to file the required notice on time; the notice filed when an RI has not actually ceased to be engaged in oil and gas activities; and an RI failing to update its disclosure and issuer profile on SEDAR.com to reflect that it has ceased to be engaged in oil and gas activities.

Section 6.2 of NI 51-101 discusses ceasing to engage in oil and gas activities and states:

A reporting issuer must file with the securities regulatory authority a notice prepared in accordance with Form 51-101F5 not later than 10 days after ceasing to be engaged, directly or indirectly, in oil and gas activities.

Per section 1.1 of NI 51-101, oil and gas activities 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*; [...]

Section 1.3 of 51-101CP states regarding the subject:

NI 51-101 applies to reporting issuers engaged in oil and gas activities. The definition of oil and gas activities is broad. For example, a reporting issuer with no reserves, but with prospects, unproved properties or resources other than reserves, may be deemed to be engaged in oil and gas activities because such activities include exploration and development of unproved properties.

Staff encourage RIs to:

- Ensure they are aware of the requirements of section 6.2 of NI 51-101.
- File an executed notice prepared in accordance with Form 51-101F5 no later than 10 days after ceasing to be engaged in oil and gas activities.
- Prior to filing the notice prepared in accordance with Form 51-101F5, confirm they have actually ceased to engage in oil and gas activities, paying particular attention to the definition of oil and gas activities per section 1.1 of NI 51-101. Note that an RI may remain engaged in oil and gas activities while concurrently pursuing unrelated opportunities.
- As necessary, update their disclosure, as well as their issuer profile on SEDAR.com, to reflect that they are no longer engaged in oil and gas activities. This includes updating the description of their business on their website and generic language in press releases.

3. Additional information worth noting

3.1 INTRODUCTION

This section discusses select regulatory topics with respect to oil and gas disclosure including the term “qualified reserves evaluator,” the terms “preparation date” and “effective date,” abandonment and reclamation costs, and forward contracts. The information provided is not exhaustive and there is more available for consideration in NI 51-101 and its related forms, 51-101CP, various staff notices and the COGE Handbook. Please seek appropriate professional advice concerning this information.

3.2 “QUALIFIED RESERVES EVALUATOR (QRE)”

Qualified reserves evaluators and auditors are fundamental to disclosure under NI 51-101, including the annual filing requirements. For example, section 5.2 of NI 51-101 requires disclosure of reserves and other information of a type specified in Form 51-101F1 to be prepared or audited by a qualified reserves evaluator or auditor. Additionally, section 5.9 requires the same if an RI discloses anticipated results from resources which are not currently classified as reserves. This includes an estimate of a quantity in which the RI has an interest or intends to acquire an interest, or an estimated value attributable to an estimated quantity.

The following information is provided in an effort to help inform RIs regarding the importance of qualified reserves evaluators with respect to NI 51-101 and the RI’s associated obligations.

Regarding the annual filing requirements, section 2.1 of NI 51-101 compels an RI to file a:

- Statement of the reserves data and other information specified in Form 51-101F1 (see section 2.1(1)).
- Report in accordance with Form 51-101F2 that is to be executed by one of more qualified reserves evaluators or auditors (see section 2.1(2)).
- Report referring to these forms that is in accordance with Form 51-101F3, which acknowledges that an independent qualified reserves evaluator or auditor has evaluated or audited its reserves data, contingent resources data and prospective resources data disclosed in the statement of the reserves data and other information (see section 2.1(3)).

Furthermore, section 3.2 of NI 51-101 states:

A reporting issuer must appoint one or more qualified reserves evaluators, or qualified reserves auditors, each of whom is independent of the reporting issuer, and must direct each appointed evaluator or auditor to report to the board of directors of the reporting issuer on the reserves data disclosed in the statement prepared for the purpose of item 1 of section 2.1.

Qualified reserves evaluator is defined in section 1.1 of NI 51-101 as an individual who:

- (a) in respect of particular *reserves data, resources* or related information, possesses professional qualifications and experience appropriate for the estimation, *evaluation* and *review* of the *reserves data, resources* and related information; and
- (b) is a member in good standing of a *professional organization*;

Section 1.1 of NI 51-101 defines professional organization as:

[A] self-regulatory organization of engineers, geologists, and other geoscientists or other professionals whose professional practice includes *reserves evaluations* or *reserves audits*, that:

- (a) admits members primarily on the basis of their educational qualifications;
- (b) requires its members to comply with the professional standards of competence and ethics prescribed by the organization that are relevant to the estimation, *evaluation, review* or *audit* of reserves data;
- (c) has disciplinary powers, including the power to suspend or expel a member; and
- (d) is either:
 - (i) given authority or recognition by statute in a jurisdiction of Canada; or
 - (ii) accepted for this purpose by the *securities regulatory authority* or the *regulator*;

Section 1.1(6) of 51-101CP states:

[...]A *qualified reserves evaluator* or *qualified reserves auditor* must

- possess professional qualifications and experience appropriate for the tasks contemplated in the *Instrument*, and
- be a member in good standing of a *professional organization*.

Reporting issuers should satisfy themselves that any person they appoint to perform the tasks of a *qualified reserves evaluator* or *auditor* for the purpose of the *Instrument* satisfies each of the elements of the appropriate definition.

In addition to having the relevant professional qualifications, a *qualified reserves evaluator* or *auditor* must also have sufficient practical experience relevant to the *reserves data* to be reported on. In assessing the adequacy of practical experience, reference should be made to section 3 of volume 1 of the *COGE Handbook* - "Qualifications of Evaluators and Auditors, Enforcement and Discipline".

Please note that this information is located in section 5.4 of the recently amended COGE Handbook.

Section 2(b) of CSA SN 51-327 states regarding qualified reserves evaluators:

An independent qualified reserves evaluator or auditor who signs a report in Form 51-101F2 is representing that the disclosed information is not misleading and that the reserves data and resources data (if disclosed) are free of material misstatement. Therefore, by signing those forms, qualified reserves evaluators and auditors are taking on a professional responsibility that reflects on their individual professionalism and the integrity of their profession. This section provides guidance using, as an example, representations about the net present value of future net revenue of an Oil and Gas Issuer's estimated proved and probable reserves.

(i) Professional Responsibility

One of the requirements of NI 51-101 is that a qualified reserves evaluator or auditor must be a member of a professional organisation as defined in section 1.1 of NI 51-101.[...]

(iv) Expertise Required to Perform Evaluation

When evaluators or auditors sign a report prepared in accordance with Form 51-101F2 they are representing that they possess the expertise to carry out the evaluation that is being reported.[...]

The topic of qualified reserves evaluators is addressed in the recently amended COGE Handbook. Section 5.4.3.1.1 states:

Reserves and Resources evaluators are considered qualified if they have sufficient educational background, training, and experience to exercise prudent judgement and to be responsibly charged with Reserves estimation and preparation and analysis of cash flows. Whether a QRE is qualified is judged individually. An evaluator should only undertake work that he or she is competent to perform based on his or her training and experience.

The SPEE (Calgary Chapter) has the following requirements for QREs:

- They are a registered professional in good standing and licensed to practice in engineering, geology, geophysics, or other discipline of physical science.
- They have a minimum of five years practical experience in petroleum engineering, geology, or geophysics, with at least three recent years experience evaluating Reserves and Resources.
- The evaluator must be current and competent in the methods and practices of Resource evaluation.

Additional information is contained in section 5.6 of the COGE Handbook, which states, regarding the contents of an evaluation report:

The following holds true for all evaluation reports:

[...]

- If any information or data in an evaluation report is not based on the author's own observations and investigations, then these other sources should be clearly stated.[...]
- Evaluation reports must be prepared by or under the direct supervision of a QRE.[...]

3.3 “PREPARATION DATE” AND “EFFECTIVE DATE”

The terms “preparation date” and “effective date” are used throughout NI 51-101 and its related forms with respect to the preparation of oil and gas disclosure. Staff have received several recent inquiries concerning these terms.

Regarding preparation date, section 1.1 of NI 51-101 states:

[I]n respect of written disclosure, means the most recent date to which information relating to the period ending on the *effective date* was considered in the preparation of the disclosure;

Section 1.1 defines effective date as:

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

Section 2.1 of NI 51-101 discusses annual filing requirements for RIs engaged in oil and gas activities. Section 2.1(1) requires an RI to file a statement of the reserves data and other information specified in Form 51-101F1, as at the last day of the RI’s most recent financial year and for the financial year then ended. Therefore, the effective date is the last day of the RI’s most recent financial year. The preparation date occurs after the effective date and accounts for information related to events that occurred up to and including the effective date. It is the last date at which this information was used or “considered” in the preparation of oil and gas disclosure.

General instruction (2) of Form 51-101F1 states:

Unless otherwise specified in this Form 51-101F1, information under item 1 of section 2.1 of NI 51-101 must be provided as at the last day of the reporting issuer’s most recent financial year or for the financial year then ended.

Item 1.1 of Form 51-101F1 requires disclosure of the effective date and preparation date of the information being provided. Affirming the meaning of effective date, instruction (1) of part 1 states:

For the purpose of Part 2 of NI 51-101, and consistent with General Instruction (2) of this Form 51-101F1, the effective date to be disclosed under section 2 of Item 1.1 is the last day of the reporting issuer’s most recent financial year.

Instruction (3) of Form 51-101F1 states:

The preparation date, in respect of written disclosure, means the most recent date to which information relating to the period ending on the effective date was considered in the preparation of the disclosure. The preparation date is a date subsequent to the effective date because it takes time after the end of the financial year to assemble the information for that completed year that is needed to prepare the required disclosure as at the end of the financial year.

Section 2.8(3) of 51-101CP provides further clarity with respect to the applicability of these terms to the preparation of an evaluation from which disclosure is attributed, and states:

A qualified reserves evaluator or auditor cannot prepare an *evaluation* using information that relates to events that occurred after the *effective date*, being the financial year-end. Information that relates to events that occurred after the year-end should not be incorporated into the forecasts. For example, information about drilling results from wells drilled in January or February, or changes in *production* that occurred after year-end date of December 31, should not be used. Even though this more recent information is available, the evaluator or auditor should not go back and change the forecast information for disclosure purposes. The forecast is to be based on the evaluator's or auditor's perception of the future as of December 31, the *effective date* of the report. [...]

3.4 ABANDONMENT AND RECLAMATION COSTS

The recently amended COGE Handbook contains updated guidance regarding abandonment, decommissioning and reclamation costs (**ADR**), which is considered equivalent to abandonment and reclamation costs in NI 51-101 and related forms, 51-101CP, and staff notices. This section includes select information and disclosure requirements concerning abandonment and reclamation costs, followed by updated COGE Handbook guidance regarding ADR. This information is included to encourage awareness of both the disclosure requirements regarding abandonment and reclamation costs under NI 51-101 and the technical guidance mandated for its preparation. Additional information on the subject is available in the ASC's Abandonment and Reclamation Costs financial reporting bulletin published in April 2016 by the Office of the Chief Accountant.

3.4.1 NI 51-101 AND RELATED FORMS

Per section 1.1 of NI 51-101, future net revenue means:

[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*;

Per CSA SN 51-324, the term "resources" refers to reserves, contingent resources and prospective resources.

Per section 1.1 of NI 51-101, abandonment and reclamation costs means:

[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;

Per CSA SN 51-324, property 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).

Considering the terms “property” and “oil and gas activities” collectively, a property is 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. Additionally, disclosure of future net revenue attributed to any category of reserves or resources other than reserves, whether it occurs within or outside of the statement of the reserves data and other information specified in Form 51-101F1, is required to be net of abandonment and reclamation costs.

Item 2.1 of Form 51-101F1 discusses disclosure of reserves data. Per section 1.1 of NI 51-101, reserves data means:

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

Item 2.1(2) of Form 51-101F1 requires disclosure of the aggregated net present value of future net revenue by country, attributable to the reserves categories per item 2.1(1), which are:

- (a) *proved developed producing reserves*;
- (b) *proved developed non-producing reserves*;
- (c) *proved undeveloped reserves*;
- (d) *proved reserves* (in total);
- (e) *probable reserves* (in total);
- (f) *proved plus probable reserves* (in total); and
- (g) if the *reporting issuer* discloses an estimate of *possible reserves* in the statement:
 - (i) *possible reserves* (in total); and
 - (ii) *proved plus probable plus possible reserves* (in total).

Item 2.1(3)(b) requires disclosure of aggregated abandonment and reclamation costs by country, for the reserves categories specified in item 2.1(3)(a), which are:

- (i) *proved reserves* (in total)
- (ii) *proved plus probable reserves* (in total); and
- (iii) if paragraph 1(g) of this Item applies (refers to item 2.1(1)(g)), *proved plus probable plus possible reserves* (in total).

Item 5.2 of Form 51-101F1 states regarding significant economic factors or uncertainties affecting reserves data:

Identify and discuss significant economic factors or significant uncertainties that affect particular components of the *reserves data*.

INSTRUCTIONS

(1) A reporting issuer must, under this Item, include a discussion of any significant abandonment and reclamation costs, unusually high expected development costs or operating costs, or contractual obligations to produce and sell a significant portion of production at prices substantially below those which could be realized but for those contractual obligations.[...]

As abandonment and reclamation costs attributed to wells, facilities, surface leases, pipelines, etc., can affect reserves data, it may be appropriate to discuss these under this item. This discussion may include information that isn't captured under item 2.1 of Form 51-101F1.

Item 6.2.1 of Form 51-101F1 states regarding significant economic factors or uncertainties relevant to properties with no attributed reserves:

Identify and discuss significant economic factors or significant uncertainties that have affected or are reasonably expected to affect the anticipated development or production activities on *properties* with no attributed *reserves*.

INSTRUCTIONS

(1) A reporting issuer must, under this Item, include a discussion of any significant abandonment and reclamation costs, unusually high expected development costs or operating costs, or contractual obligations to produce and sell a significant portion of production at prices substantially below those which could be realized but for those contractual obligations.[...]

These properties may or may not have had reserves previously attributed and may have or may previously have had resources other than reserves attributed, including contingent resources and prospective resources. Since wells, facilities, surface leases, pipelines, etc. can be associated with properties with no reserves attributed, it may be appropriate to discuss abandonment and reclamation costs associated with these under this item.

Regarding disclosure of additional information not required by Form 51-101F1, general instruction (5) of Form 51-101F1 states:

This Form 51-101F1 sets out minimum requirements. A reporting issuer may provide additional information not required in this Form 51-101F1 provided that 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[...].

So, if it is not misleading, the CSA would not object to an RI disclosing abandonment and reclamation costs that have not been included in an evaluation, including those attributed to wells, facilities, surface leases, pipelines, etc.

3.4.2 COGE HANDBOOK

Section 3.6.4 states:

ADR costs represent the end of life costs associated with restoring to a standard imposed by applicable government or regulatory authorities, an asset where petroleum exploration, development, production and processing operations have been conducted.

As stated previously, ADR costs are considered equivalent to abandonment and reclamation costs per NI 51-101 and related forms, etc.

Regarding ADR costs and an evaluation prepared in accordance with the COGE Handbook, section 3.6.4 states:

Each report must clearly describe the ADR costs:

- included in the evaluation; and
- those excluded from the evaluation.

Concerning the description in the evaluation:

Statements regarding ADR costs should address both active and inactive development including but not limited to:

- producing wells;
- suspended wells;
- service wells;
- gathering systems;
- facilities; and
- surface land development.

Although active and inactive development is not clarified, staff consider the former to refer to wells and undeveloped locations that have attributed recoverable volumes. This includes producing reserves, undeveloped reserves, contingent resources and prospective resources.

Section 3.6.4.1 discusses ADR costs with respect to existing development and states:

Best practice would include all costs required to restore existing development from the well's bottom hole to custody transfer point, to a standard imposed by applicable government or regulatory authorities and include the ADR costs for both active and inactive development included in the assets evaluated. These ADR costs may be reported at an appropriate level fit for purpose, such as a corporate level.

Recall that item 2.1 of Form 51-101F1 requires disclosure of abandonment and reclamation costs by country. Furthermore, recall that section 1.1 of NI 51-101 defines future net revenue as being net of abandonment and reclamation costs. Section 1.1 also states that abandonment and reclamation costs are to account for all costs associated with the process of restoring an RI's property that has been disturbed by oil and gas activities to a standard imposed by applicable government or regulatory authorities.

Section 3.6.4.1 further states:

Regulatory disclosure requirements of ADR costs may vary between jurisdictions. If these disclosure requirements differ from the best practices recommended herein, that difference must be clearly documented within the report, as they will not represent full ADR costs.

Section 3.6.4.2 discusses ADR costs with respect to future development and states:

Evaluating future development activities requires assurance of economic viability prior to assigning Reserves. This requires including ADR costs as one of the incremental costs when assessing the profitability of a project to ensure a reasonable return on investment. ADR costs related to future development can generally be reasonably estimated and included, since only economically viable entities are included in an evaluation of undeveloped assets. The source of ADR estimates must be identified.

As discussed above, future net revenue disclosed under NI 51-101 must be net of abandonment and reclamation costs, whether for reserves attributed to existing (developed reserves) or future development (undeveloped reserves), or for contingent resources or prospective resources.

3.5 FORWARD CONTRACTS

From time to time, RIs engaged in oil and gas activities may enter into transportation obligations or commitments with respect to the delivery of product types. These agreements typically involve pipelines, railways, tankers, barges and trucks, and the length of individual agreements can vary considerably. For example, truck transportation agreements are generally short term, while those involving pipelines regulated by the Government of Canada are generally longer term. In response to difficulties in securing egress from western Canada in recent years, many RIs have entered into longer term transportation agreements. The following information is provided in an effort to help RIs understand their disclosure obligations under such circumstances.

Forward contracts are discussed in item 6.3 of Form 51-101F1, which states:

1. If the *reporting issuer* is bound by an agreement (including a transportation agreement), directly or through an aggregator, under which it may be precluded from fully realizing, or may be protected from the full effect of, future market prices for *oil or gas*, describe generally the agreement, discussing dates or time periods and summaries or ranges of volumes and contracted or reasonably estimated values.
2. A *reporting issuer* may satisfy the requirement in section 1 by including the information required by that section in its financial statements for the financial year ended on the *effective date*. [...]

When considering the requirements of item 6.3, RIs are reminded of items 5.2 and 6.2.1 of Form 51-101F1. Item 5.2 states regarding reserves data:

Identify and discuss economic factors or significant uncertainties that affect particular components of the *reserves data*.

INSTRUCTIONS

(1) A reporting issuer *must*, under this Item, include a discussion of [...] **contractual obligations to produce and sell a significant portion of production at prices substantially below those which could be realized but for those contractual obligations**. [...]

Item 6.2.1 states regarding properties with no attributed reserves:

Identify and discuss significant economic factors or significant uncertainties that have affected or are reasonably expected to affect the anticipated development or production activities on *properties* with no attributed reserves.

INSTRUCTIONS

(1) A reporting issuer *must*, under this Item, include a discussion of [...] **contractual obligations to produce and sell a significant portion of production at prices substantially below those which could be realized but for those contractual obligations.**[...]

Furthermore, item 6.3 states regarding forward contracts:

3. If the *reporting issuer's* transportation obligations or commitments for future physical deliveries of oil or gas exceed the *reporting issuer's* expected related future *production* from its *proved reserves*, estimated using *forecast prices* and *costs* and disclosed under Part 2, discuss such excess, giving information about the amount of the excess, dates or time periods, volumes and reasonably estimated value.

This disclosure is intended to mitigate capital market participant risk in situations where an RI does not currently have the proved reserves (in total) of a particular product type necessary to satisfy such an agreement.

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 times per year and attended by Members, observers and select ASC staff.

PAC's mandate is to:

- Review and provide feedback on issues and current developments regarding the evaluation of oil and gas reserves and resources other than reserves, and disclosure related to oil and gas activities.
- Comment on related current and proposed Alberta securities laws and regulatory policies in this area.
- Provide advice to staff on an informal basis.

Topics discussed in the last year include pricing assumptions used to prepare disclosure, mechanical updates and the recent amendments to the COGE Handbook.

The ASC thanks the Members for their contributions.

Current Members:

Caralyn P. Bennett, P.Eng.
GLJ Petroleum Consultants Ltd.

David P. Carey, P.Eng., MBA
Retired

Harry Helwerda, P.Eng., FEC
Retired

Dr. John Lacey, P.Eng.
Enjay Holdings Alberta Ltd.

Keith McCandlish, P.Geol., P.Geo., FGC, FEC (Hon.)
DMT Geosciences Ltd.

Ian McDonald, P.Eng.
Nexen Energy ULC

Jeff Meunier, P.Eng.
RBC Capital Markets

Rob Morgan, P.Eng.
Cona Resources Ltd.

James Surbey, B.Eng., LLB
Birchcliff Energy Ltd.

Philip A. Welch, P.Eng.
McDaniel & Associates Consultants Ltd.

John Zahary, P.Eng.
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5. Contact information

We welcome your questions and input regarding this Report and other NI 51-101 matters.

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GLOSSARY OF TERMS

The following terms and their definitions are sourced from section 1.1 of NI 51-101 *Standards of Disclosure For Oil and Gas Activities* and CSA Staff Notice 51-324 *Revised Glossary to NI 51-101 Standards of Disclosure for Oil and Gas Activities*.

“anticipated results” means information 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.

“best estimate” means the value derived by an evaluator using deterministic methods that best represents the expected outcome with no optimism or conservatism. When a deterministic best estimate of reserve is prepared, this estimate, subject to other appropriate constraints, represents proved + probable reserves. If probabilistic methods are used, there should be at least a 50 percent probability (P50) that the quantities actually recovered will equal or exceed the best estimate.

“COGE Handbook” means the “Canadian Oil and Gas Evaluation Handbook” maintained by the Society of Petroleum Evaluation Engineers (Calgary Chapter), as amended from time to time.

“chance of commerciality” means the product of the chance of discovery and the chance of development. The likelihood that a project will achieve commerciality is referred to as the “chance of commerciality.”

“chance of discovery” means the estimated probability that exploration activities will confirm the existence of a significant accumulation of potentially recoverable petroleum.

“commercial” means when a project is commercial this implies that the essential social, environmental, and economic conditions are met, including political, legal, regulatory, and contractual conditions.

Considerations with regard to determining commerciality include:

- economic viability of the related development project;
- a reasonable expectation that there will be a market for the expected sales quantities of production required to justify development;
- evidence that the necessary production and transportation facilities are available or can be made available;
- evidence that legal, contractual, environmental, governmental, and other social and economic concerns will allow for the actual implementation of the recovery project being evaluated;
- a reasonable expectation that all required internal and external approvals will be forthcoming. Evidence of this may include items such as signed contracts, budget approvals, and approvals for expenditures, etc.
- evidence to support a reasonable timetable for development. A reasonable time frame for the initiation of development depends on the specific circumstances and varies according to the scope of the project. Although five years is recommended as a maximum time frame for classification of a project as commercial, a longer time frame could be applied, where, for example, development of economic projects are deferred at the option of the producer for, among other things, market-related reasons or to meet contractual or strategic objectives.

“contingent resources data” means:

- (a) an estimate of the volume of contingent resources, and
- (b) the risked net present value of future net revenue of contingent resources.

“development not viable” means where no further data acquisition or evaluation is currently planned and hence there is a low chance of development.

“development on hold” means where there is a reasonable chance of development, but there are major non-technical contingencies to be resolved that are usually beyond the control of the operator.

“development pending” means where resolution of the final conditions for development is being actively pursued (high chance of development).

“development unclarified” means when the evaluation is incomplete and there is ongoing activity to resolve any risks or uncertainties.

“effective date” in respect of information, means the date as at which, or for the period ended on which, the information is provided.

“evaluation” means, in relation to reserves data or resources other than reserves, the process whereby an economic analysis is made of a property to arrive at an estimate of a range of net present values of the estimated future net revenue resulting from the production of the reserves or resources other than reserves associated with the property.

“forecast prices and costs” means future prices and costs that are:

- (a) generally accepted as being a reasonable outlook of the future;
- (b) if, and only to the extent that, there are fixed or presently determinable future prices or costs to which the reporting issuer is legally bound by a contractual or other obligation to supply a physical product, including those for an extension period of a contract that is likely to be extended, those prices or costs rather than the prices and costs referred to in subparagraph (a).

“future net revenue” means 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.

“gas” includes natural gas, conventional natural gas, coal bed methane, gas hydrates, shale gas, and synthetic gas.

“gross”

- (a) In relation to a reporting issuer’s interest in production or reserves, its "company gross reserves", which are the reporting issuer’s working interest (operating or non-operating) share before deduction of royalties and without including any royalty interests of the reporting issuer.
- (b) In relation to wells, the total number of wells in which a reporting issuer has an interest.
- (c) In relation to properties, the total area of properties in which a reporting issuer has an interest.

“net”

- (a) In relation to a reporting issuer’s interest in production or reserves, the reporting issuer’s working interest (operating or non-operating) share after deduction of royalty obligations, plus the reporting issuer’s royalty interests in production or reserves.
- (b) In relation to a reporting issuer’s interest in wells, the number of wells obtained by aggregating the reporting issuer’s working interest in each of its gross wells.
- (c) In relation to a reporting issuer’s interest in a property, the total area in which the reporting issuer has an interest multiplied by the working interest owned by the reporting issuer.

“oil” includes crude oil, bitumen, tight oil and synthetic crude oil.

“oil and gas activities” include 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.

“property” 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.

“prospective resources data” means:

- (a) an estimate of the volume of prospective resources, and
- (b) the risked net present value of future net revenue of prospective resources.

“qualified reserves auditor (QRA)” means an individual who:

- (a) in respect of particular reserves data, resources or related information, possesses professional qualifications and experience appropriate for the estimation, evaluation, review and audit of the reserves data, resources and related information; and
- (b) is a member in good standing of a professional organization.

“qualified reserves evaluator (QRE)” means an individual who:

- (a) in respect of particular reserves data, resources or related information, possesses professional qualifications and experience appropriate for the estimation, evaluation and review of the reserves data, resources and related information; and
- (b) is a member in good standing of a professional organization.

“qualified reserves evaluator or auditor” means a qualified reserves auditor or a qualified reserves evaluator.

“reserves” means proved, probable or possible reserves.

“reserves data” means an estimate of proved reserves and probable reserves and related future net revenue, estimated using forecast prices and costs.



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