Companion Policy 51-101
Standards of Disclosure for Oil and Gas Activities

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This Companion Policy sets out the views of the Canadian Securities Administrators (*CSA*) as to the interpretation and application of National Instrument 51-101 *Standards of Disclosure for Oil and Gas Activities* (*NI 51-101*) and related forms.

NI 51-101 supplements other continuous disclosure requirements of *securities legislation* that apply to *reporting issuers* in all business sectors.

The requirements under *NI 51-101* for the filing with *securities regulatory authorities* of information relating to *oil and gas activities* are designed in part to assist capital market participants in making investment decisions and recommendations.

The *CSA* encourage registrants and other persons and companies that wish to make use of information concerning *oil and gas activities* of a *reporting issuer*, including *reserves data*, to review the information filed on *SEDAR* under *NI 51-101* by the *reporting issuer* and, if they are summarizing or referring to this information, to use the applicable terminology consistent with *NI 51-101* and the *COGE Handbook*.

PART 1 APPLICATION AND TERMINOLOGY

1.1 Definitions

(1) General

Several terms relating to *oil and gas activities* are defined in section 1.1 of *NI 51-101*. If a term is not defined in *NI 51-101*, *NI 14-101* or the securities statute in the *jurisdiction*, it will have the meaning or interpretation given to it in the *COGE Handbook* if it is defined or interpreted there, pursuant to section 1.2 of *NI 51-101*.

For the convenience of readers, CSA Staff Notice 51-324 *Glossary to NI 51-101 Standards of Disclosure for Oil and Gas Activities* (the *NI 51-101 Glossary*) as amended, restated or replaced from time to time, sets out the meaning of terms, including those defined in *NI 51-101* and several terms which are derived from the *COGE Handbook*.

The terms set out in the *NI 51-101 Glossary* are printed in italics in *NI 51-101*, *Form 51-101F1*, *Form 51*-101F2, *Form 51-101F3*, *Form 51-101F4*, *Form 51-101F5* or in this Companion Policy for the convenience of readers.

(2) *Forecast Prices and Costs*

The term *forecast prices and costs* is defined in section 1.1 of *NI 51-101* and discussed in the *COGE Handbook*. Except to the extent that the *reporting issuer* is legally bound by fixed or presently determinable future prices or costs, *forecast prices and costs* are future prices and costs "generally accepted as being a reasonable outlook of the future".

The *CSA* do not consider that future prices or costs would satisfy this requirement if they fall outside the range of forecasts of comparable prices or costs used, as at the same date, for the same future period, by major *independent qualified reserves evaluators or auditors* or by other reputable sources appropriate to the *evaluation*.

(3) *Independent*

The term *independent* is defined in section 1.1 of *NI 51-101*. Applying this definition, the following are examples of circumstances in which the *CSA* would consider that a *qualified reserves evaluator or auditor* (or other expert) is not *independent*. We consider a *qualified reserves evaluator or auditor* is not *independent* when the *qualified reserves evaluator or auditor*:

(a) is an employee, insider, or director of the *reporting issuer*;

(b) is an employee, insider, or director of a related party of the *reporting issuer*;

(c) is a partner of any person or company in paragraph (a) or (b);

(d) holds or expects to hold securities, either directly or indirectly, of the *reporting issuer* or a related party of the *reporting issuer*;

(e) holds or expects to hold securities, either directly or indirectly, in another *reporting issuer* that has a direct or indirect interest in the *property* that is the subject of the technical report or an adjacent *property*;

(f) has or expects to have, directly or indirectly, an ownership, royalty, or other interest in the *property* that is the subject of the technical report or an adjacent *property*; or

(g) has received the majority of their income, either directly or indirectly, in the three years preceding the date of the technical report from the *reporting issuer* or a related party of the *reporting issuer*.

For the purpose of paragraphs (b) and (d) above, "related party of the *reporting issuer*" means an affiliate, associate, subsidiary, or control person of the *reporting issuer* as those terms are defined under *securities legislation*.

There may be instances in which it would be reasonable to consider that the *independence* of a *qualified reserves evaluator or auditor* would not be compromised even though the *qualified reserves evaluator or auditor* holds an interest in the *reporting issuer's* securities. The *reporting issuer* needs to determine whether a reasonable person would consider that such interest would interfere with the *qualified reserves evaluator's or auditor*'s judgement regarding the preparation of the technical report.

There may be circumstances in which the *securities regulatory authorities* question the objectivity of the *qualified reserves evaluator or auditor*. In order to ensure the requirement for *independence* of the *qualified reserves evaluator or auditor* has been preserved, the *reporting issuer* may be asked to provide further information, additional disclosure or the opinion of another *qualified reserves evaluator or auditor* to address concerns about possible bias or partiality on the part of the *qualified reserves evaluator or auditor*.

(4) Additional Disclosure

The *CSA* encourage *reporting issuers* engaged in *oil and gas activities* that may require additional explanation to supplement the disclosure prescribed in *NI 51-101* and *Form 51-101F1,* with information specific to those activities that can assist investors and others in understanding the business and results of the *reporting issuer*.

A *reporting issuer* should choose the closest *product type* if the substance produced does not exactly match one of the *product* types or if it matches more than one of the *product types* listed in NI 51-101. For example, *shale gas projects* may not strictly adhere to the formal lithological-based definition of "shale". The produced *gas* can come from intervals that contain clay, carbonates, siltstone and minor amounts of very fine-grained sandstone laminations. Despite coming from intervals that may not meet the technical definition of "shale", *gas* to which fracturing techniques have been applied, when intermingled with *gas* that comes from "shale", may be reported as being *shale gas.*

A *reporting issuer* must ensure that its disclosure is not misleading and will have to consider whether additional explanation is required to provide the necessary context.

(5) *Professional Organization*

(a) Recognized *Professional Organizations*

For the purposes of the *Instrument*, a *qualified reserves evaluator or auditor* must also be a member in good standing with a self-regulated *professional organization* of engineers, geologists, geoscientists or other *oil* and *gas* professionals.

The definition of "*professional organization*" (in section 1.1 of *NI 51-101* and in the *NI 51-101 Glossary*) has four elements, three of which deal with the basis on which the organization accepts members and its powers and requirements for continuing membership. The fourth element requires either authority or recognition given to the organization by a statute in Canada, or acceptance of the organization by the *securities regulatory authority* or *regulator*.

(a.1) Canadian *Professional Organizations*

As at December 4, 2014, each of the following organizations in Canada is a *professional organization* for the purposes of *NI 51-101*:

- Association of Professional Engineers and Geoscientists of Alberta (APEGA)
- Association of Professional Engineers and Geoscientists of the Province of British Columbia (APEGBC)
- Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS)
- Association of Professional Engineers and Geoscientists of the Province of Manitoba (APEGM)

- Association of Professional Geoscientists of Ontario (APGO)
- Professional Engineers Ontario (PEO)
- Ordre des ingénieurs du Québec (OIQ)
- Ordre des géologues du Québec (OGQ)
- Association of Professional Engineers of Prince Edward Island (APEPEI)
- Association of Professional Engineers and Geoscientists of New Brunswick (APEGNB)
- Association of Professional Engineers of Nova Scotia (APENS)
- Association of Professional Geoscientists of Nova Scotia (APGNS)
- Association of Professional Engineers and Geoscientists of Newfoundland and Labrador (APEGNL)
- Association of Professional Engineers of Yukon (APEY)
- Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG)

(b) Other *Professional Organizations*

The *CSA* are willing to consider whether particular foreign professional bodies should be accepted as "*professional organizations*" for the purposes of *NI 51-101*. A *reporting issuer*, foreign professional body or other interested person can apply to have a self-regulatory organization that satisfies the first three elements of the definition of "*professional organization*" accepted for the purposes of *NI 51-101*.

In considering any such application for acceptance, the *securities regulatory authority* or *regulator* is likely to take into account the degree to which a foreign professional body's authority or recognition, admission criteria, standards and disciplinary powers and practices are similar to, or differ from, those organizations listed above.

As at December 4, 2014, each of the following foreign organizations has been recognized as a *professional organization* for the purposes of *NI 51-101*:

- California Board for Professional Engineers, Land Surveyors, and Geologists
- Colorado State Board of Licensure for Architects, Professional Engineers, and Professional Land Surveyors
- Louisiana Professional Engineering and Land Surveying Board (LAPELS)

- Oklahoma State Board of Licensure for Professional Engineers and Land Surveyors
- Texas Board of Professional Engineers
- American Association of Petroleum Geologists (AAPG) but only in respect of Certified Petroleum Geologists who are members of the AAPG's Division of Professional Affairs
- American Institute of Professional Geologists (AIPG), in respect of the AIPG's Certified Professional Geologists (CPG)
- Energy Institute (EI) but only for those members of the Energy Institute who are Members and Fellows
- Society of Petroleum Evaluation Engineers (SPEE), but only in respect of Members, Honorary Life Members and Life Members

(c) No *Professional Organization*

A *reporting issuer* or other person may apply for an exemption under Part 8 of *NI 51-101* to enable a *reporting issuer* to appoint, in satisfaction of its obligation under section 3.2 of *NI 51-101*, an individual who is not a member of a *professional organization*, but who has other satisfactory qualifications and experience. Such an application might refer to a particular individual or generally to members and employees of a particular foreign *reserves evaluation* firm. In considering any such application, the *securities regulatory authority* or *regulator* is likely to take into account the individual's professional education and experience or, in the case of an application relating to a firm, to the education and experience of the firm's members and employees, evidence concerning the opinion of a *qualified reserves evaluator or auditor* as to the quality of past work of the individual or firm, and any prior relief granted or denied in respect of the same individual or firm.

(d) Renewal Applications Unnecessary

A successful applicant would likely have to make an application contemplated in this subsection 1.1(5) only once, and not renew it annually.

(6) *Qualified Reserves Evaluator or Auditor*

The definitions of *qualified reserves evaluator* and *qualified reserves auditor* are set out in section 1.1 of *NI 51-101* and again in the *NI 51-101 Glossary*.

The defined terms "*qualified reserves evaluator*" and "*qualified reserves auditor*" have a number of elements. 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”.

1.2 *COGE Handbook*

Pursuant to section 1.2 of *NI 51-101*, definitions and interpretations in the *COGE Handbook* apply for the purposes of *NI 51-101* if they are not defined in *NI 51-101*, *NI 14-101* or the securities statute in the *jurisdiction* (except to the extent of any conflict or inconsistency with *NI 51-101*, *NI 14-101* or the securities statute).

Section 1.1 of *NI 51-101* and the *NI 51-101 Glossary* set out definitions and interpretations, many of which are derived from the *COGE Handbook*. *Reserves* and *resources* definitions and categories are incorporated in the *COGE Handbook* and are also set out, in part, in the *NI 51-101 Glossary*.

Subparagraph 5.2(1)(a)(iii) of *NI 51-101* requires that all estimates of *reserves* or *future net revenue* be prepared or *audited* in accordance with the *COGE Handbook*. Under sections 5.2, 5.3 and 5.9 of *NI 51-101*, all types of public *oil* and *gas* disclosure, including disclosure of *reserves* and of *resources* other than *reserves*, must be prepared in accordance with the *COGE Handbook* subject to the exception pursuant to section 5.18 of *NI 51-101*.

1.3 Applies to *Reporting Issuers* Only

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*.

NI 51-101 will also apply to an issuer that is not yet a *reporting issuer* if it files a prospectus or other disclosure document that incorporates prospectus requirements. Pursuant to the long-form prospectus requirements, the *reporting issuer* must disclose the information contained in *Form 51-101F1*, as well as the reports set out in *Form 51-101F2* and *Form 51-101F3*.

1.4 *Materiality* Standard

Section 1.4 of *NI 51-101* states that *NI 51-101* applies only in respect of information that is *material*. *NI 51-101* does not require disclosure or filing of information that is not *material*. If information is not required to be disclosed because it is not *material*, it is unnecessary to disclose that fact.

Materiality for the purposes of *NI 51-101* is a matter of judgement to be made in light of the circumstances, taking into account both qualitative and quantitative factors, assessed in respect of the *reporting issuer* as a whole.

The reference in subsection 1.4(2) of *NI 51-101* to a "reasonable investor" denotes an objective test: would a notional investor, broadly representative of investors generally and guided by reason, be likely to be influenced, in making an investment decision to buy, sell or hold a security of a *reporting issuer*, by an item of information or an aggregate of items of information? If so, then that item of information, or aggregate of items, is "*material*" in respect of that *reporting issuer*. An item that is immaterial alone may be *material* in the context of other information, or may be necessary to give context to other information. For example, a large number of small interests in *oil* and *gas properties* may be *material* in aggregate to a *reporting issuer*. Alternatively, a small interest in an *oil* and *gas property* may be *material* to a *reporting issuer*, depending on the size of the *reporting issuer* and its particular circumstances.

PART 2 ANNUAL FILING REQUIREMENTS

2.1 Annual Filings on *SEDAR*

The information required under section 2.1 of *NI 51-101* must be filed electronically on *SEDAR*. Consult National Instrument 13-101 *System for Electronic Document Analysis and Retrieval* (*SEDAR*) and the current *CSA* "*SEDAR* Filer Manual" for information about filing documents electronically. The information required to be filed under item 1 of section 2.1 of *NI 51-101* is usually derived from a much longer and more detailed *oil* and *gas* report prepared by a *qualified reserves evaluator or auditor.* These long and detailed reports should not be filed electronically on SEDAR. The filing of an *oil* and *gas* report, or a summary of an *oil* and *gas* report, does not satisfy the requirements of the annual filing under *NI 51-101*.

2.2 Inapplicable or Immaterial Information

Section 2.1 of *NI 51-101* does not require the filing of any information, even if specified in *NI 51-101* or in a form referred to in *NI 51-101*, if that information is inapplicable or not *material* in respect of the *reporting issuer*. See section 1.4 of this Companion Policy for a discussion of *materiality*.

If an item of prescribed information is not disclosed because it is inapplicable or immaterial, it is unnecessary to state that fact or to make reference to the disclosure requirement.

2.3 Use of Forms

Section 2.1 of *NI 51-101* requires the annual filing of information set out in *Form 51-101F1* and reports in accordance with *Form 51-101F2* and *Form 51-101F3*. Appendix 1 to this Companion Policy provides an example of how certain of the *reserves data* might be presented. While the format presented in Appendix 1 in respect of *reserves data* and other oil and gas information is not mandatory, we encourage *reporting issuers* to use this format.

The information specified in all three forms, or any two of the forms, can be combined in a single document. A *reporting issuer* may wish to include statements indicating the relationship between documents or parts of one document. For example, the *reporting issuer* may wish to accompany the report of the *independent qualified reserves evaluator or auditor* (*Form 51-101F2*) with a reference to the *reporting issuer's* disclosure of the *reserves data* (*Form 51-101F1*), and vice versa.

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*.

2.4 *Annual Information Form*

Section 2.3 of *NI 51-101* permits *reporting issuers* to satisfy the requirements of section 2.1 of *NI 51-101* by presenting the information required under section 2.1 in an *annual information form*. If a *reporting issuer* adopting this approach provides optional disclosure of *contingent resources data* and *prospective resources data* in its statement of reserves data and other oil and gas information required under section 2.1, that disclosure must be included as an appendix to the *reporting issuer's annual information form*.

(1) Meaning of "*Annual Information Form*"

Annual information form has the same meaning as "AIF" in National Instrument 51-102 *Continuous Disclosure Obligations*. Therefore, as set out in that definition, an *annual information form* can be a completed Form 51-102F2 *Annual Information Form* or, in the case of an *SEC* issuer (as defined in *NI 51-102*), a completed Form 51-102F2 or an annual report or transition report under the *1934 Act* on Form 10-K, Form 10-KSB or Form 20-F.

(2) Option to Set Out Information in *Annual Information Form*

Form 51-102F2 *Annual Information Form* allows the information required by section 2.1 of *NI 51-101* to be included in the *annual information form*. That information may be included either by setting out the text of the information in the *annual information form* or by incorporating it, by reference to the separately filed documents. The option offered by section 2.3 of *NI 51-101* enables a *reporting issuer* to satisfy its obligations under section 2.1 of *NI 51-101*, as well as its obligations in respect of *annual information form* disclosure, by setting out the information required under section 2.1 only once, in the *annual information form*. If the *annual information form* is on Form 10-K, this can be accomplished by including the information in a supplement (often referred to as a "wrapper") to the Form 10-K.

A *reporting issuer* that elects to set out in full in its *annual information form* the information required by section 2.1 of *NI 51-101* need not file that information again for the purpose of section 2.1 in one or more separate documents. However, a *reporting issuer* that elects to follow this approach must file, at the same time and on *SEDAR*, in the appropriate *SEDAR* category, a notice in accordance with *Form 51-101F4* (see subsection 2.3(2) of *NI 51-101)*. This notification will assist other SEDAR users in finding that information. It is not necessary to make a duplicate filing of the *annual information form* itself under the SEDAR *NI 51-101 oil and gas* disclosure category.

2.5 *Reporting Issuer* With No *Reserves* or Ceasing to Engage in *Oil and Gas Activities*

The requirement to make annual *NI 51-101* filings is not limited to only those *reporting issuers* that have *reserves* and related *future net revenue*. A *reporting issuer* with no *reserves,* but with *prospects*, *unproved properties* or *resources* may be engaged in *oil and gas activities* (see section 1.3 above) and therefore subject to *NI 51-101*. That means the *reporting issuer* must still make annual *NI 51-101* filings and ensure that it complies with other *NI 51-101* requirements. The following is guidance on the preparation of *Form 51-101F1*, *Form 51-101F2*, *Form 51-101F3*, *Form 51-101F5 and* other *oil* and *gas* disclosure if the *reporting issuer* has no *reserves*.

(1) *Form 51-101F1*

Section 1.4 of *NI 51-101* states that the *Instrument* applies only in respect of information that is *material* in respect of a *reporting issuer*. If indeed a *reporting issuer* has no *reserves,* we would consider that fact alone *material*. The *reporting issuer's* disclosure, under Part 2 of *Form 51-101F1*, should make clear that it has no *reserves* and hence is not reporting related *future net revenue*.

Supporting information regarding *reserves data* required under Part 2 (e.g., price estimates) that are not *material* to the *reporting issuer* may be omitted. However, if the *reporting issuer* had disclosed *reserves* and related *future net revenue* in the previous year, and has no *reserves* as at the end of its current financial year, the *reporting issuer* is still required by Part 4 of *Form 51-101F1* to present a reconcilation to the prior-year's estimates of *reserves*.

The *reporting issuer* is also required to disclose information required under Part 6 of *Form 51-101F1*. Those requirements apply irrespective of the quantum of *reserves*. This would include information about *properties* (items 6.1 and 6.2), costs (item 6.6), and exploration and development activities (item 6.7). The disclosure should make clear that the *reporting issuer* had no *production*, as that fact would be *material*.

(2) *Form 51-101F2*

NI 51-101 requires a *reporting issuer* to retain an *independent qualified reserves evaluator or auditor* to *evaluate* or *audit* its *reserves data*, c*ontingent resources data* or *prospective resources data*, if that data is included in the statement required under item 1 of section 2.1 of *NI 51-101,* and to have that evaluator or auditor report to the board of directors.

If the *reporting issuer* had no *reserves* during the year, it would not need to retain an evaluator or auditor just to file a (nil) report of the *independent* evaluators on the *reserves data* in the form of *Form 51-101F2*. If, however, the issuer did retain an evaluator or auditor to evaluate *reserves*, and the evaluator or auditor concluded that they could not be so categorized, or reclassified those *reserves* to *resources*, the issuer would have to file a report of the *qualified reserves evaluator* because the evaluator has, in fact, *evaluated* the *reserves* and expressed an opinion.

(3) *Form 51-101F3*

Irrespective of whether the *reporting issuer* has *reserves* or *resources* other than *reserves* to report, the requirement to file a report of management and directors in the form of *Form 51-101F3* applies.

(4) *Form 51-101F5*

Section 6.2 of *NI 51-101* requires *reporting issuers* that cease to be engaged in *oil and gas activities* to file a notice in the form of *Form 51-101F5*.

(5) Other *NI 51-101* Requirements

NI 51-101 does not require *reporting issuers* to disclose *anticipated results* from, or estimates of a quantity or an estimated value attributable to an estimated quantity of, their *contingent resources* or *prospective resources*. However, if a *reporting issuer* chooses to disclose that type of information, sections 5.9, 5.16 and 5.17 of *NI 51-101* apply to that disclosure. If disclosed in the statement required under item 1 of section 2.1 of *NI 51-101*, Part 7 of *Form 51-101F1* also applies to that disclosure.

Section 5.3 of *NI 51-101* requires *reserves* and *resources* other than *reserves* to be disclosed using the applicable terminology and categories set out in the *COGE Handbook.*

2.6 *Reservation* in Report of *Independent Qualified Reserves Evaluator or Auditor*

A report of an *independent qualified reserves evaluator or auditor* on *reserves data* will not satisfy the requirements of item 2 of section 2.1 of *NI 51-101* if the report contains a *reservation*, which can be removed by the *reporting issuer* (subsection 2.4(2) of *NI 51-101*).

The *CSA* do not generally consider time and cost considerations to be causes of a *reservation* that cannot be removed by the *reporting issuer*.

A report containing a *reservation* may be acceptable if the *reservation* is caused by a limitation in the scope of the *evaluation* or *audit* resulting from an event that clearly limits the availability of necessary records and which is beyond the control of the *reporting issuer*. This could be the case if, for example, necessary records have been inadvertently destroyed and cannot be recreated or if necessary records are in a country at war and access is not practicable.

One potential source of *reservations*, which the *CSA* consider can and should be addressed in a different way, is reliance by a *qualified reserves evaluator or auditor* on information derived or obtained from a *reporting issuer's independent* financial auditors or reflected in their report. The *CSA* recommend that *qualified reserves evaluators or auditors* follow the procedures and guidance set out in both sections 4 and 12 of volume 1 of the *COGE Handbook* in respect of dealings with *independent* financial auditors. In so doing, the *CSA* expect that the quality of *reserves data* can be enhanced and a potential source of *reservations* can be eliminated.

2.7 Disclosure in *Form 51-101F1*

(1) Royalty Interest in *Reserves*

Net reserves (or "company *net reserves*") of a *reporting issuer* include its royalty interest in *reserves*.

If a *reporting issuer* cannot obtain the information it requires to enable it to include a royalty interest in *reserves* in its disclosure of *net reserves*, it should, proximate to its disclosure of *net reserves*, disclose that fact and its corresponding royalty interest share of *oil* and *gas production* for the year ended on the *effective date*.

(2) Government Restriction on Disclosure

If, because of a restriction imposed by a government or governmental authority having jurisdiction over a *property*, a *reporting issuer* excludes *reserves* information from its *reserves data* disclosed under *NI 51-101*, the disclosure should include a statement that identifies the *property* or country for which the information is excluded and explains the exclusion.

(3) Computation of *Future Net Revenue*

(a) Tax

Reporting issuers are required to disclose estimates of after-tax net present value of *proved* and *probable reserves* in the statement prepared in accordance with *Form 51-101F1*. In addition, *reporting issuers* may, but are not required to, disclose volumes and estimates of risked after-tax net present value of *future net revenue* of *contingent resources* and *prospective resources* in an appendix to the statement prepared in accordance with *Form 51-101F1*. In a separate disclosure document, a *reporting issuer* may also disclose its *reserves* or other information of a type that is specified in the *Form 51-101F1* in the aggregate or for a portion of its activities, subject to the requirements of subparagraph 5.2(1)(a)(iii) and paragraph 5.2(1)(c) of *NI 51-101.*

Estimates of after-tax net present value are dependent on a number of factors including, but not limited to, one or more of the following:

- forecast future capital expenditure required to achieve forecast *production*;
- interaction with, or deductibility of, government royalties or proportionate sharing rights;
- inclusion of existing tax pool balances of the *reporting issuer* (inclusion is prescribed for *reporting issuer*-aggregate estimates according to section 7 of volume 1 of the *COGE Handbook*);
- tax pool write-off rates;
- sequence of tax pool utilization;
- applicability of special tax incentives; and
- forecast *production* revenue and expenses.

Each of these can have a significant impact on the outcome, which could mislead investors if not considered in the *evaluation* or if the *reporting issuer's* disclosure does not provide sufficient accompanying information.

If a *reporting issuer* discloses after-tax net present value, it should generally include, as appropriate, one or more of the following:

- a general explanation of the method and assumptions used in the *reporting issuer's* calculation, worded to reflect its specific circumstance and the approach taken. This need not be detailed, but major aspects should be addressed, such as whether tax pools have been included in the *evaluation*;

- an explanatory statement to the following effect:

> The after-tax net present value of [the name of company]'s oil and gas properties here reflects the tax burden on the properties on a stand-alone basis. It does not consider any tax planning. It does not provide an estimate of the value at the reporting issuer's related business entity, which may be significantly different. The financial statements and the management's discussion & analysis (MD&A) of the [name of reporting issuer] should be consulted for information at the level of the reporting issuer.

Tax pools should be taken into account when computing *future net revenue* after income taxes. The definition of "future income tax expense" is set out in the *NI 51-101 Glossary*. Essentially, *future income tax expenses* represent estimated cash income taxes payable on the *reporting issuer's* future pre-tax cash flows. These cash income taxes payable should be computed by applying the appropriate year-end statutory tax rates, taking into account future tax rates already legislated, to future pre-tax *net* cash flows reduced by appropriate deductions of estimated unclaimed costs and losses carried forward for tax purposes and relating to *oil and gas activities* (i.e., tax pools). Such tax pools may include Canadian oil and gas property expense (COGPE), Canadian development expense (CDE), Canadian exploration expense (CEE), undepreciated capital cost (UCC) and unused prior year's tax losses. (*Reporting issuers* should be aware of limitations on the use of certain tax pools resulting from acquisitions of *properties* in situations where provisions of the Income Tax Act concerning successor corporations apply.)

(b) Other Fiscal Regimes

Other fiscal regimes, such as those involving *production* sharing contracts, should be adequately explained with appropriate allocations made to various categories of *proved reserves* and to *probable reserves*.

(4) Supplementary Disclosure of *Future Net Revenue* Using Constant Prices and Costs

Form 51-101F1 gives *reporting issuers* the option of disclosing *future net revenue*, together with associated estimates of *reserves* or *resources* other than *reserves*, calculated using *constant prices and costs*. Constant prices and costs are assumed not to change throughout the life of a *property*, except to the extent of certain 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).

(4.1) Estimates of *Contingent Resources* and *Prospective Resources*

Estimates of *contingent resources* should be disclosed to the most specific category set out in the *COGE Handbook,* which includes *project maturity sub-classes* for *contingent resources*.

Since *contingent resources* and *prospective resources* are subject to risks that result in less than 100% *chance of commerciality*, the *qualified reserves evaluator or auditor* of a *reporting issuer* will need to address those risks in the estimation and classification of that *reporting issuer's* publicly disclosed *contingent resources* and *prospective resources*. There are many methods to accomplish this and no particular method is being prescribed.

Expected Value Theory is one of the methods which can be used to quantify the risked volumes and values of the *resources*. The expected value is the sum of all the possible outcomes of a *project*, such as volumes and values of the *resources*, multiplied by their respective estimated probabilities of occurrence. The expected value is not the actual value of the *contingent resources* or *prospective resources* for a particular *project* but an average of the outcomes weighted by probabilities of the outcomes. If a *reporting issuer* has a large number of similar *projects* and they are executed many times, the actual value obtained may approach the expected value. Expected value is a decision tool to decide if a *project* will go ahead.

If the expected value is in monetary terms, the calculated expected value is termed Expected Monetary Value (EMV) and it is one applicable method that can be used to estimate a risked net present value of *future net revenue*. One occurrence of a single *project* is unlikely to achieve the calculated EMV. In theory, by always choosing *projects* with the greatest positive EMV, the *reporting issuer* may achieve better results than by making more random decisions. The *COGE Handbook* states that EMV is not a projection of revenue but a tool for companies to determine whether it makes sense to proceed with a *project* to develop potential sales volumes. *Reporting issuers* will need to explain how those volumes and values were determined if included under Item 7.1 or 7.2 of *Form 51-101F1*.

Contingent resources in the *development pending project maturity sub-class* have the highest chance of development and *commerciality* of all *resources* other than *reserves*. Because there is additional uncertainty with the other *project maturity sub-classes* of *contingent resources* and *prospective resources*, disclosure of the risked net present value of *prospective resources* and *contingent resources* other than in the *development pending project maturity sub-class* should be accompanied by a detailed explanation of *chance of commerciality*, which includes both the *chance of discovery* and the *chance of development* based on economic and development-related factors (such as development plans, production forecasts, markets, facilities, capital and operating costs, product prices and approvals) in the case of *prospective resources* and *chance of development* in the case of *contingent resources.* Without disclosure relating to the *chance of discovery* and *chance of development*, disclosure of the risked net present value of *prospective resources* and *contingent resources* other than in the *development pending project maturity sub-class* may be misleading.

(5) ~~**Repealed.**~~[Intentionally Blank]

(6) *Reserves* Reconciliation

(a) If the *reporting issuer* reports *reserves*, but had no *reserves* to report at the start of the reconciliation period, a reconciliation of *reserves* must be carried out if any *reserves* added during the previous year are *material*. Such a reconciliation will have an opening balance of zero.

(b) The *reserves* reconciliation is prepared on a *gross reserves*, not *net reserves*, basis. For some *reporting issuers* with significant royalty interests, such as royalty trusts, the *net reserves* may exceed the *gross reserves*. In order to provide adequate disclosure given the distinctive nature of its business, the *reporting issuer* may also disclose its *reserves* reconciliation on a *net reserves* basis. The *reporting issuer* is not precluded from providing this additional information with its disclosure prescribed in *Form 51-101F1* provided that the *net reserves* basis for the reconciliation is clearly identified in the additional disclosure to avoid confusion.

(c) Clause 2(c)(ii) of item 4.1 of *Form 51-101F1* requires reconciliations of *reserves* to separately identify and explain reserves changes, including technical revisions. Technical revisions show changes in existing *reserves* estimates, in respect of carried-forward *properties*, over the period of the reconciliation (i.e., between estimates as at the *effective date* and the prior year's estimate) and are the result of new technical information, not the result of capital expenditure. With respect to making technical revisions, the following should be noted:

- <u>Infill Drilling</u>: It would not be acceptable to include infill drilling results as a technical revision. *Reserves* additions derived from infill drilling during the year are not attributable to revisions to the previous year's *reserves* estimates. Infill drilling *reserves* must either be included in the "extensions and improved recovery" reserve change category or in an additional stand-alone reserve change category in the *reserves* reconciliation labelled "infill drilling".

- <u>Acquisitions</u>: If an acquisition is made during the year, (i.e., in the period between the *effective date* and the prior year's estimate), the *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.

(7) Significant Factors or Uncertainties

Item 5.2 of *Form 51-101F1* requires a *reporting issuer* to identify and discuss important economic factors or significant uncertainties that affect particular components of the *reserves data*.

Important economic factors or significant uncertainties may include *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.

Incidents that lead to a significant decrease in the volume of *production* from business operations should be disclosed. This may include *production* losses due to theft and sabotage. In order to not be misleading, the decrease in the volume of *production* should be considered for disclosure when a *reporting issuer* sets out first–year *production* estimates under *Form 51-101F1* requirements.

If events subsequent to the *effective date* but prior to the preparation date have resulted in significant changes in expected future prices, such that the forecast prices reflected in the *reserves data* differ significantly from those that would be considered to be a reasonable outlook on the future around the date of the company's "statement of reserves data and other information", then the *reporting issuer's* statement might include, pursuant to item 5.2, a discussion of that change and its effect on the disclosed *future net revenue* estimates. It may be misleading to omit this information. Refer to subsection 2.8(3) of this Companion Policy respecting the related commentary relating to *qualified reserves evaluators or auditors*.

(8) Additional Information

As discussed in section 2.3 above and in the instructions to *Form 51-101F1*, *NI 51-101* offers flexibility in the use of the prescribed forms and the presentation of required information. The disclosure prescribed in *Form 51-101F1* is the minimum disclosure required, subject to the *materiality* standard. *Reporting issuers* may provide additional disclosure that is not inconsistent with *NI 51-101* and not misleading.

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.

(9) Sample *Reserves Data* Disclosure

Appendix 1 to this Companion Policy sets out an example of how certain of the *reserves data*, *contingent resources data* and *prospective resources data* might be presented in a manner which the *CSA* consider to be consistent with *NI 51-101* and *Form 51-101F1*. The *CSA* encourages *reporting issuers* to use the format presented in Appendix 1.

The sample presentation in Appendix 1 also illustrates how certain additional information not mandated under *Form 51-101F1* might be incorporated in an annual filing.

2.8 *Form 51-101F2*

(1) Negative Assurance by *Qualified Reserves Evaluator or Auditor*

A *qualified reserves evaluator or auditor* conducting a review may wish to express only negative assurance – for example, in a statement such as "Nothing has come to my attention which would indicate that the reserves data have not been prepared in accordance with principles and definitions presented in the Canadian Oil and Gas Evaluation Handbook". This can be contrasted with a positive statement such as an opinion that "The reserves data have, in all material respects, been determined and presented in accordance with the Canadian Oil and Gas Evaluation Handbook and are, therefore, free of material misstatement".

The *CSA* are of the view that statements of negative assurance can be misinterpreted as providing a higher degree of assurance than is intended or warranted.

The *CSA* believe that a statement of negative assurance would constitute so *material* a departure from the report prescribed in *Form 51-101F2* as to fail to satisfy the requirements of item 2 of section 2.1 of *NI 51-101*.

In the rare case, if any, in which there are compelling reasons for making such disclosure (e.g., a prohibition on disclosure to external parties), the *CSA* believe that, to avoid providing information that could be misleading, the *reporting issuer* should include in such disclosure useful explanatory and cautionary statements. Such statements should explain the limited nature of the work undertaken by the *qualified reserves evaluator or auditor* and the limited scope of the assurance expressed, noting that it does not amount to a positive opinion.

(2) Variations in Estimates

The report prescribed by *Form 51-101F2* contains statements to the effect that variations between *reserves data*, *contingent resources data* and *prospective resources data* and actual results may be *material* but those estimates have been determined in accordance with the *COGE Handbook*, which has been consistently applied.

Reserves and *resources* other than *reserves* estimates are made at a point in time, being the *effective date*. A reconciliation of a *reserves* and *resources* other than *reserves* estimate to actual results is likely to show variations and the variations may be *material*. This variation may arise from factors such as exploration discoveries, acquisitions, divestments and economic factors that were not considered in the initial *reserves* estimate. Variations that occur with respect to *properties* that were included in both the *reserves* and *resources* other than *reserves* estimate and the actual results may be due to technical or economic factors. Any variations arising due to technical factors must be consistent with the fact that *reserves* and *resources* other than *reserves* are categorized according to the probability of their recovery.

(3) *Effective date* of *Evaluation*

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. Refer to subsection 2.7(4.1)(7) of this Companion Policy respecting the related commentary relating to *reporting issuers*.

2.9 Chief Executive Officer

Paragraph 2.1(3)(e) of *NI 51-101* requires a *reporting issuer* to file a report in accordance with *Form 51-101F3* that is executed by the chief executive officer. The term "chief executive officer" should be read to include the individual who has the responsiblities normally associated with this position or the person who acts in a similar capacity. This determination should be made irrespective of an individual's corporate title and whether that individual is employed directly or acts pursuant to an agreement or understanding.

2.10 *Reporting Issuer* Not a Corporation

If a *reporting issuer* is not a corporation, a report in accordance with *Form 51-101F3* would be executed by the persons who, in relation to the *reporting issuer*, are in a similar position or perform similar functions to the persons required to execute under paragraph 2.1(3)(e) of *NI 51-101*.

PART 3 RESPONSIBILITIES OF *REPORTING ISSUERS* AND DIRECTORS

3.1 *Reserves* Committee

Section 3.4 of *NI 51-101* enumerates certain responsibilities of the board of directors of a *reporting issuer* in connection with the preparation of *oil* and *gas* disclosure.

The *CSA* believe that certain of these responsibilities can in many cases more appropriately be fulfilled by a smaller group of directors who bring particular experience or abilities and an *independent* perspective to the task.

Subsection 3.5(1) of *NI 51-101* permits a board of directors to delegate responsibilities (other than the responsibility to approve the content or filing of certain documents) to a committee of directors, a majority of whose members are independent of management. Although subsection 3.5(1) is not mandatory, the *CSA* encourage *reporting issuers* and their directors to adopt this approach.

3.2 Responsibility for Disclosure

NI 51-101 requires the involvement of an *independent qualified reserves evaluator or auditor* in preparing or reporting on certain *oil* and *gas* information disclosed by a *reporting issuer*, and in section 3.2 mandates the appointment of an *independent qualified reserves evaluator or auditor* to report on *reserves data* and *resources* other than *reserves* data.

The *CSA* do not intend or believe that the involvement of an *independent qualified reserves evaluator or auditor* relieves the *reporting issuer* of responsibility for information disclosed by it for the purposes of *NI 51-101*.

PART 4 MEASUREMENT

4.1 Consistency in Dates

Section 4.2 of *NI 51-101* requires consistency in the timing of recording the effects of events or transactions for the purposes of both annual financial statements and annual *reserves data* disclosure.

To ensure that the effects of events or transactions are recorded, disclosed or otherwise reflected consistently (in respect of timing) in all public disclosure, a *reporting issuer* will wish to ensure that both its financial auditors and its *qualified reserves evaluators or auditors*, as well as its directors, are kept apprised of relevant events and transactions, and to facilitate communication between its financial auditors and its *qualified reserves evaluators or auditors*.

Sections 4 and 12 of volume 1 of the *COGE Handbook* set out procedures and guidance for the conduct of *reserves evaluations* and *reserves audits*, respectively. Section 12 deals with the relationship between a *reserves* auditor and the client's financial auditor. Section 4, in connection with *reserves evaluations*, deals somewhat differently with the relationship between the *qualified reserves evaluator or auditor* and the client's financial auditor. The *CSA* recommend that *qualified reserves evaluators or auditors* carry out the procedures discussed in both sections 4 and 12 of volume 1 of the *COGE Handbook*, whether conducting a *reserves evaluation* or a *reserves audit*.

PART 5 REQUIREMENTS APPLICABLE TO ALL DISCLOSURE

5.1 Application of Part 5

(1) General

Part 5 of *NI 51-101* imposes requirements and restrictions that apply to all "disclosure" (or, in some cases, all written disclosure) of a type described in section 5.1 of *NI 51-101*. Section 5.1 refers to disclosure that is either

- filed by a *reporting issuer* with the *securities regulatory authority*, or
- if not filed, otherwise made available to the public or made in circumstances in which, at the time of making the disclosure, the *reporting issuer* expects, or ought reasonably to expect, the disclosure to become available to the public.

As such, Part 5 applies to a broad range of disclosure including

- the annual filings required under Part 2 of *NI 51-101*,
- other continuous disclosure filings, including material change reports (which themselves may also be subject to Part 6 of *NI 51-101*),
- public disclosure documents, whether or not filed, including news releases,
- public disclosure made in connection with a distribution of securities, including a prospectus, and
- except in respect of provisions of Part 5 that apply only to written disclosure, public speeches and presentations made by representatives of the *reporting issuer* on behalf of the *reporting issuer*.

For these purposes, the *CSA* consider written disclosure to include any writing, map, plot or other printed representation whether produced, stored or disseminated on paper or electronically. For example, if material distributed at a company presentation refers to *BOEs*, the material should be prepared in accordance with section 5.14 of *NI 51-101*.

To ensure compliance with the requirements of Part 5, the *CSA* encourage *reporting issuers* to involve a *qualified reserves evaluator or auditor*, or other person who is familiar with *NI 51-101* and the *COGE Handbook*, in the preparation, review or approval of all such *oil* and *gas* disclosure.

(2) Supplementary Resources Disclosure

All public disclosure of *reserves* or *resources* other than *reserves* made by a *reporting issuer* must be made in accordance with Part 5 of *NI 51-101*. This means that *reserves* and *resources* other than *reserves* disclosed publicly by a *reporting issuer* must be *evaluated* in accordance with the *COGE Handbook*. A *reporting issuer* may supplement its disclosure of *reserves* or *resources* other than *reserves evaluated* in accordance with an alternative *resources* evaluation standard under section 5.18 of *NI 51-101,* to the extent that such disclosure is not contrary to section 5.18 of *NI 51-101*. Alternative *resources* evaluation standards that the *CSA* considers acceptable include the *SEC*'s oil and gas disclosure framework and the Petroleum Resource Management System prepared by the Society of Petroleum Engineers.

The *CSA* are of the view that disclosure is "required under the laws of or by a foreign jurisdiction" when, in order to access the capital markets of a foreign jurisdiction, a *reporting issuer* is required by that jurisdiction to present *reserves* or *resources* other than *reserves* disclosure in accordance with that jurisdiction's *resources* evaluation standard.

If a reporting issuer re-discloses a *reserves* or *resources* other than *reserves* estimate that has been provided in response to the laws of a foreign jurisdiction in public disclosure that has not been required by a foreign jurisdiction (for example, in a news release), a *reporting issuer* will need to consider whether there is sufficient context in the non-required disclosure to allow a reader of that document to appreciate the nature of the alternative *resources* evaluation standard and the differences between the estimate prepared under NI 51-101 and the alternative *resources* evaluation standard.

Paragraphs 5.18(2)(b) and (3)(c) of NI 51-101 require a description of the differences between an estimate prepared under an alternative *resources* evaluation standard and an estimate prepared under *NI 51-101* and the *COGE Handbook*, and the reasons for those differences, but does not require an actual reconciliation of those estimates

5.2 Disclosure of *Reserves* and Other Information

(1) General

A *reporting issuer* must comply with the requirements of section 5.2 of *NI 51-101* in its disclosure, to the public, of *reserves* estimates and other information of a type specified in *Form 51-101F1*. This would include, for example, disclosure of such information in a news release.

(2) *Reserves*

NI 51-101 does not prescribe any particular methods of estimation but it does require that a *reserves* estimate be prepared in accordance with the *COGE Handbook*.

(3) *Possible Reserves*

A *possible reserves* estimate – either alone or as part of a sum – is often a relatively large number that, by definition, has a low probability of actually being recovered. For this reason, the cautionary language prescribed in subparagraph 5.2(1)(a)(v) of *NI 51-101* must accompany the written disclosure of a *possible reserves* estimate.

(4) Probabilistic and Deterministic *Evaluation* Methods

Section 5 of volume 1 of the *COGE Handbook* states that "In principle, there should be no difference between estimates prepared using probabilistic or deterministic methods".

When deterministic methods are used, in the absence of a "mathematically derived quantitative measure of probability", the classification of *reserves* is based on professional judgment as to the quantitative measure of certainty attained.

When probabilistic methods are used in conjunction with good engineering and geological practice, they will provide more statistical information than the conventional deterministic method. The following are a few critical criteria that an evaluator must satisfy when applying probabilistic methods:

- The evaluator must still estimate the *reserves* and *resources* other than *reserves* applying the definitions and using the guidelines set out in the *COGE Handbook*.

- Entity level probabilistic *reserves* and *resources* other than *reserves* estimates should be aggregated arithmetically to provide reported level *reserves* and *resources* other than *reserves*.

- If the evaluator also prepares aggregate *reserves* and *resources* other than *reserves* estimates using probabilistic methods, the evaluator should explain in the *evaluation* report the method used. In particular with respect to *reserves*, the evaluator should specify what confidence levels were used at the entity, *property*, and reported (i.e., total) levels for each of *proved*, *proved* + *probable* and *proved* + *probable* + *possible* (if reported) *reserves*.

- If the *reporting issuer* discloses the aggregate *reserves* and *resources* other than *reserves* that the evaluator prepared using probabilistic methods, the *reporting issuer* should provide a brief explanation, near that disclosure, about the *reserves* and *resources* other than *reserves* definitions used for estimating the *reserves* and *resources* other than *reserves*, about the method that the evaluator used, and the underlying confidence levels that the evaluator applied.

(5) Availability of Funding

In assigning *reserves* to an undeveloped *property*, the *reporting issuer* is not required to have the funding available to develop the *reserves*, since they may be developed by means other than the expenditure of the *reporting issuer's* funds (for example by a farm-out or sale). *Reserves* must be estimated assuming that development of the *properties* will occur without regard to the likely availability of funding required for that *property*. See section 7 of volume 1 of the *COGE Handbook* and subparagraph 5.2(1)(a)(iv) of *NI 51-101*.

However, item 5.3 of *Form 51-101F1* requires a *reporting issuer* to discuss its expectations as to the sources and costs of funding for estimated future *development costs*. If the costs of funding would make development of a *property* unlikely, then even if *reserves* were assigned, the *reporting issuer* must discuss that expectation and its plans for the *property*.

Disclosure of an estimate of *reserves*, *contingent resources* or *prospective resources* in respect of which timely availability of funding for development is not assured may be misleading if that disclosure is not accompanied, proximate to it, by a discussion (or a cross-reference to such a discussion in other disclosure filed by the *reporting issuer* on *SEDAR*) of funding uncertainties and their anticipated effect on the timing or completion of such development (or on any particular stage of multi-stage development such as often observed in oil sands developments).

(6) *Proved* or *Probable Undeveloped Reserves*

Proved or *probable undeveloped reserves* must be reported in the year in which they are recognized. If the *reporting issuer* does not disclose the *proved* or *probable undeveloped reserves*, it may be omitting *material* information, thereby causing the *reserves* disclosure to be misleading. If the *proved* or *probable undeveloped reserves* are not disclosed to the public, then those who have a special relationship with the *reporting issuer* and know about the existence of these *reserves* would not be permitted to purchase or sell the securities of the *reporting issuer* until that information has been disclosed. If the *reporting issuer* has filed or intends to file a prospectus, the prospectus might not contain “full, true and plain disclosure” of all *material* facts if it does not contain information about these *proved* or *probable undeveloped reserves*. *Reporting issuers* should review section 10.3 of volume 1 of the *COGE Handbook* for a discussion on what information is to be included in disclosure about these *reserves*.

(7) Mechanical Updates

So-called “mechanical updates” of *reserves* and *resources* other than *reserves* reports are sometimes created, often by rerunning previous *evaluations* with a new price deck. This is problematic since there may have been *material* changes other than price that may result in the report being misleading. If a *reporting issuer* discloses the results of the mechanical update it should ensure that all relevant *material changes* are also disclosed so that the information is not misleading.

5.3 Classification of *Reserves* and of *Resources* Other Than *Reserves*

Section 5.3 of *NI 51-101* requires that any disclosure of *reserves* or of *resources* other than *reserves* must apply the applicable categories and terminology set out in the *COGE Handbook*. The definitions of *resource* categories, derived from the *COGE Handbook*, are provided in the *NI 51-101 Glossary*. In addition, section 5.3 of *NI 51-101* requires that disclosure of *reserves* or of *resources* other than *reserves* must relate to the most specific category of *reserves* or of *resources* other than *reserves* in which the *reserves* or *resources* other than *reserves* can be classified. For instance, there are several *project maturity sub-classes* of *contingent resources* including *development pending, development on-hold, development unclarified and development not viable*.

Reserves can be characterized as *proved*, *probable* or *possible*, according to the probability that such quantities will actually be produced. As described in the *COGE Handbook*, *proved*, *probable* and *possible reserves* represent conservative, realistic and optimistic estimates of *reserves*, respectively. Therefore, any disclosure of *reserves* must indicate whether they are *proved*, *probable* or *possible reserves*.

Reporting issuers that disclose *resources* other than *reserves* must identify those *resources* as *discovered* or *undiscovered* except in exceptional circumstances where the most specific category is *total petroleum initially-in-place*, *discovered petroleum initially-in-place* or *undiscovered petroleum initially-in-place*, in which case the *reporting issuer* must comply with subsection 5.16(3) of *NI 51-101*.

5.4 *Natural Gas By-Products*

Section 5.5 of *NI 51-101* does not allow *natural gas liquids reserves (NGLs)* to be assigned prior to the *first point of sale* unless the *NGLs* have been extracted from the *natural gas* stream. If the *NGLs* will be extracted prior to the *first point of sale*, it may be appropriate to disclose *NGLs reserves* if there is a contract in place that explicitly provides for alternate delivery or marketing arrangements.

5.5 *Future Net Revenue* Not Fair Market Value

A risked or unrisked net present value of *future net revenue* is not a measure of fair market value.

5.6 Evaluator or Auditor Consent

Section 4.4 of volume 1 of the *COGE Handbook* recommends the preparation of an engagement letter that specifies a "project description confirming the scope and objective of the [evaluation] project". An *evaluation* report is typically prepared for a particular purpose. *CSA* staff recommend that *reporting issuers* seek the consent of the evaluator prior to disclosing information from a report for a purpose other than which the report was prepared, or for selective disclosure from any report. A requirement for the evaluator's consent to disclose part or all of an *evaluation* is often part of this engagement letter.

5.7 Disclosure of *Resources* Other than *Reserves*

(1) Disclosure of *Resources* Generally

The disclosure of *resources*, excluding *proved* and *probable reserves*, is not mandatory under *NI 51-101*, except that a *reporting issuer* must make disclosure concerning its *unproved properties* and *resource* activities in its annual filings as described in Part 6 of *Form 51-101F1*. Additional disclosure beyond this is voluntary and must comply with section 5.9 of *NI 51-101* if *anticipated results* from the *resources* other than *reserves* are voluntarily disclosed.

For prospectuses, the general securities disclosure obligation of "full, true and plain" disclosure of all *material* facts would require the disclosure of *reserves* or of *resources* other than *reserves* that are *material* to the *reporting issuer*, even if the disclosure is not mandated by *NI 51-101*. Any such disclosure should be based on supportable analysis.

Disclosure of *resources* other than *reserves* may involve the use of statistical measures that may be unfamiliar to a user. It is the responsibility of the evaluator and the *reporting issuer* to be familiar with these measures and for the *reporting issuer* to be able to explain them to investors. Information on statistical measures may be found in the *COGE Handbook* (section 9 of volume 1 and section 4 of volume 2) and in the extensive technical literature[1] on the subject.

(2) Disclosure of *Anticipated Results* under Subsection 5.9(1) of *NI 51-101*

If a *reporting issuer* voluntarily discloses *anticipated results* from *resources* that are not classified as *reserves*, it must disclose certain basic information concerning the *resources*, which is set out in subsection 5.9(1) of *NI 51-101*. Additional disclosure requirements arise if the *anticipated results* disclosed by the *reporting issuer* include an estimate of a *resource* quantity or associated value, as set out below in subsection 5.7(3).

If a *reporting issuer* discloses *anticipated results* relating to numerous aggregated *properties, prospects* or *resources*, the *reporting issuer* may, depending on the circumstances, satisfy the requirements of subsection 5.9(1) by providing summarized information in respect of each prescribed requirement. The *reporting issuer* must ensure that its disclosure is reasonable, meaningful and at a level appropriate to its size.

For a *reporting issuer* with a few *properties*, it may be appropriate to make the disclosure for each *property*. For a *reporting issuer* with many *properties*, it may be more appropriate to summarize the information by major areas or for major *projects*. However, the convenience of aggregating *properties* will not justify disclosure of *resources* in a category less specific than required to be disclosed by subsection 5.3 of *NI 51-101*.

Section 9 of volume 1 of the *COGE Handbook* provides the following definition of uncertainty:

> "Uncertainty is used to describe the range of possible outcomes of a *reserves* estimate."

However, the concept of uncertainty is generally applicable to any estimate, including not only *reserves*, but also to all other categories of *resources*.

In satisfying the requirement of paragraph 5.9(1)(d) of *NI 51-101,* 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.

If the *reporting issuer* discloses the estimated value of an *unproved property* other than a value attributable to an estimated *resource* quantity, then the *reporting issuer* must disclose the basis

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[1] For example, Determination of Oil and Gas Reserves, Monograph No. 1, Chapter 22, Petroleum Society of CIM, Second Edition 2004. (ISBN 0-9697990-2-0) Newendorp, P., & Schuyler, J., 2000, Decision Analysis for Petroleum Exploration, Planning Press, Aurora, Colorado (ISBN 0- 9664401-1-0). Rose, P. R., Risk Analysis and Management of Petroleum Exploration Ventures, AAPG Methods in Exploration Series No. 12, AAPG (ISBN 0-89181-062-1)

of the calculation of the value, in accordance with paragraph 5.9(1)(e) of *NI 51-101*. This type of value is typically based on *petroleum* land management practices that consider activities and land prices in nearby areas. If done *independently*, it would be done by a valuator with petroleum land management expertise who would generally be a member of a *professional organization* such as the Canadian Association of Petroleum Landmen. This is distinguishable from the determination of a value attributable to an estimated *resource* quantity, as contemplated in subsection 5.9(2) of *NI 51-101*. This latter type of value estimate must be prepared by a *qualified reserves evaluator or auditor*.

The calculation of an estimated value described in paragraph 5.9(1)(e) of *NI 51-101* may be based on one or more of the following factors:

- the acquisition cost of the *unproved property* to the *reporting issuer*, provided there have been no *material* changes in the *unproved property*, the surrounding *properties*, or the general *oil* and *gas* economic climate since acquisition;
- recent sales by others of interests in the same *unproved property*;
- terms and conditions, expressed in monetary terms, of recent farm-in agreements related to the *unproved property*;
- terms and conditions, expressed in monetary terms, of recent work commitments related to the *unproved property*;
- recent sales of similar *properties* in the same general area;
- recent exploration and discovery activity in the general area;
- the remaining term of the *unproved property*; or
- burdens (such as overriding royalties) that impact on the value of the *property*.

The *reporting issuer* must disclose the basis of the calculation of the value of the *unproved property*, which may include one or more of the above-noted factors.

The *reporting issuer* must also disclose whether the value was prepared by an *independent* party. In circumstances in which paragraph 5.9(1)(e) of *NI 51-101* applies and where the value is prepared by an *independent* party, in order to ensure that the *reporting issuer* is not making public disclosure of misleading information, the *CSA* expect the *reporting issuer* to provide all relevant information to the valuator to enable the valuator to prepare the estimate.

(3) Disclosure of an Estimate of Quantity or Associated Value of a *Resource* under Subsection 5.9(2) of *NI 51-101*

(a) Overview of Subsection 5.9(2) of *NI 51-101*

Pursuant to subsection 5.9(2) of *NI 51-101*, if a *reporting issuer* discloses an estimate of a *resource* quantity or an associated value, the estimate must have been prepared by a *qualified reserves evaluator or auditor*. *Contingent resources data* and *prospective resources data* disclosed as an appendix (see Instruction 1 of Part 7 of *Form 51-101F1*) to the statement required under item 1 of section 2.1 of *NI 51-101* must have been prepared by an *independent qualified reserves evaluator or auditor*.

If a *reporting issuer* provides disclosure of *reserves data*, *contingent resources data* or *prospective resources data* outside of its annual required filings under section 2.1 of *NI 51-101* and wishes to file or disseminate a report in a format comparable to that prescribed in *Form 51-101F2*, it may do so. However, the title of such a form should not contain the term "*Form 51-101F2*" as this form is specific to the report required by item 2 of section of 2.1 of *NI 51-101*. A heading such as "Report on Resource Estimate by Independent Qualified Reserves Evaluator or Auditor" may be appropriate. Although such an evaluation is required to be carried out by a *qualified reserves evaluator or auditor*, there is no requirement that it be *independent*. If an *independent* party does not prepare the report, *reporting issuers* should consider amending the title or content of the report to make it clear that the report has not been prepared by an *independent* party and the *resources* estimate is not an independent *resources* estimate.

Pursuant to section 5.3 of *NI 51-101*, the *reporting issuer* must ensure that the estimated *resources* relate to the most specific applicable category of *resources* in which the *resources* can be classified. As discussed above in subsection 5.7(2) of this Companion Policy, if a *reporting issuer* wishes to disclose an aggregate *resources* estimate which involves the aggregation of numerous *properties, prospects* or *resources*, it must ensure that the disclosure does not result in a contravention of the requirement in subsection 5.3(1) of *NI 51-101*. A *reporting issuer* should be aware that the disclosure of the summation of volumes from an economic *project* with an un-economic *project* may be misleading.

Subsection 5.9(2) of *NI 51-101* requires the *reporting issuer* to disclose certain information in addition to that prescribed in subsection 5.9(1) of *NI 51-101* to assist recipients of the disclosure in understanding the nature of risks associated with the estimate. This information includes a definition of the *resource* category used for the estimate, disclosure of factors relevant to the estimate and cautionary language.

(b) Definitions of *Resource Categories*

For the purpose of complying with the requirement of defining the *resource* category, the *reporting issuer* must ensure that disclosure of the definition is consistent with the *resource* categories and terminology set out in the *COGE Handbook*, pursuant to section 5.3 of *NI 51-101* and the *NI 51-101 Glossary*. Section 5 of volume 1 and section 2 of volume 2 of the *COGE Handbook* and the *NI 51-101 Glossary* identify and define the various classes, *sub-classes* and *categories* of *resources*.

By definition, *reserves* of any type, *contingent resources* and *prospective resources* are estimates of volumes that are recoverable or potentially recoverable. Terms such as "potential *reserves*", "undiscovered *reserves*", "*reserves* in-place", "in-place *reserves*" or similar terms must not be used because they are incorrect and misleading. The disclosure of *reserves* or of *resources* other than *reserves* must be consistent with the terminology and categories, set out in the *COGE Handbook*, pursuant to section 5.3 of *NI 51-101*.

In addition to disclosing the most specific applicable category of *resources*, the *reporting issuer* may disclose *total petroleum initially-in-place, discovered petroleum initially-in-*

place or *undiscovered petroleum initially-in-place* estimates provided that the additional disclosure required by subsection 5.16(3) of *NI 51-101* is included.

(c) Application of Subsection 5.9(2) of *NI 51-101*

Reporting issuers are required to disclose significant positive and negative factors relevant to the estimate pursuant to subparagraph 5.9(2)(d)(iii) of *NI 51-101*. For example, if 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 as discussed in section 2.7(7) of this Companion Policy, or any legal, capital, political, technological, business or other factor that is highly relevant to the estimate. To the extent that the *reporting issuer* discloses an estimate for numerous properties that are aggregated, it may disclose significant positive and negative factors relevant to the aggregate estimate, unless discussion of a particular *material property* or *resources* is warranted in order to provide adequate disclosure to investors.

The cautionary language in subparagraph 5.9(2)(d)(v) of *NI 51-101* includes a prescribed disclosure that there is no certainty that it will be *commercially* viable to produce any portion of the *resources*. The concept of *commercial* viability would incorporate the criteria for determining *commerciality* provided in section 5.3 of volume 1 of the *COGE Handbook*.

5.8 *Analogous Information*

A *reporting issuer* may wish to base an estimate on, or include comparative *analogous information* for their area of interest, such as *reserves*, *resources*, and *production*, from fields or wells, in nearby or geologically similar areas. Particular care must be taken in using and presenting this type of information. For the purposes of *NI 51-101*, *CSA* staff interpret a field to be limited to a single pool or a grouping of several pools within the geographic area or administrative unit from which *product types* can reasonably be recovered. Using only the best wells or fields in an area, or ignoring dry holes, for instance, may be particularly misleading. It is important to present a factual and balanced view of the information being provided.

The *reporting issuer* must comply with the disclosure requirements of section 5.10 of *NI 51-101*, when it discloses *analogous information*, as that term is broadly defined in *NI 51-101*, for an area which includes the *reporting issuer's* area of interest. Pursuant to subsection 5.10(2) of *NI 51-101*, if the *reporting issuer* discloses an estimate of its own *reserves* or *resources* other than *reserves* based on an extrapolation from the *analogous information*, or if the *analogous information* itself is an estimate of its own *reserves* or *resources*, the *reporting issuer* must ensure the estimate is prepared in accordance with the *COGE Handbook* and disclosed in accordance with *NI 51-101* generally. For example, in respect of a *reserves* or *resources* other than *reserves* estimate, the estimate must be classified and prepared in accordance with the *COGE Handbook* by a *qualified reserves evaluator or auditor* and must otherwise comply with the requirements of section 5.2 of *NI 51-101*.

5.8.1 Consistent Use of Units of Measurement

Reporting issuers should be consistent in their use of units of measurement within and between disclosure documents, to facilitate understanding and comparison of the disclosure. For example, *reporting issuers* should not, without compelling reason, switch between imperial units of measure (such as barrels) and Système International (SI) units of measurement (such as tonnes) within or between disclosure documents. *Reporting issuers* should refer to appendices B and C of volume 1 of the *COGE Handbook* for the proper reporting of units of measurement.

In all cases, in accordance with subparagraph 5.2(1)(a)(iii) and section 5.3 of *NI 51-101*, *reporting issuers* should apply the relevant terminology and unit prefixes set out in the *COGE Handbook*.

5.8.2 Oil and Gas Metrics

BOEs and *McfGEs*

Section 5.14 of *NI 51-101* sets out requirements that apply to all *oil and gas metrics*, including the disclosure of *reserves* or *resources other than reserves* by a *reporting issuer* using units of equivalency such as *BOEs* or *McfGEs*. A commonly used conversion ratio in the *oil* and *gas* industry is 6 *Mcf* of *gas* to 1 *bbl* of *oil*. If a *reporting issuer* uses a 6 *Mcf* to 1 *bbl* ratio, in order to satisfy paragraph 5.14(1)(d) of *NI 51-101*, the *reporting issuer* should provide a cautionary statement to the following effect:

> *BOEs* [or *McfGEs* or other applicable units of equivalency] may be misleading particularly if used in isolation. A BOE conversion ratio of 6 Mcf: 1 *bbl* [or “A McfGE conversion ratio of 1 *bbl*: 6 Mcf”] is based on an energy equivalency conversion method primarily applicable at the burner tip and does not represent a value equivalency at the wellhead.

When the value ratio is significantly different from the energy equivalency of 6:1; the disclosure may be misleading without additional information.

Results using conversion ratios other than 6:1 may be disclosed, provided an explanation is given. Section 13 of volume 1 of the *COGE Handbook*, under the heading “Barrels of Oil Equivalent”, provides additional guidance.

Net Asset Value, *Reserve* Replacement and Netbacks

If a *reporting issuer* discloses net asset value, *reserves* replacement or netbacks, additional disclosure will be required by paragraphs 5.14(1)(b) and 5.14(2)(a) of *NI 51-101*. For example, if a *reporting issuer* discloses

(a) net asset value or net asset value per share, it would be required to include a description of the methods used to value assets and liabilities and the number of shares used in the calculation,

(b) *reserves* replacement, it would be required to include an explanation of the method of calculation applied, or

(c) netback, it would be required to reflect netbacks calculated by subtracting royalties and operating costs from revenues and state the method of calculation.

5.9 Finding and *Development Costs*

Section 5.14 of *NI 51-101* sets out requirements that would apply if a *reporting issuer* discloses finding and *development costs*.

If a *reporting issuer* discloses finding and *development costs*, it must, pursuant to paragraphs 5.14(1)(b) and 5.14(2)(a) of *NI 51-101* include the method of calculation, the results of the calculation and if the disclosure also includes a result derived using any other method of calculation, a description of that method and the reason for its use.

5.9.1 Summation of *Resource Categories*

An estimate of quantity or an estimate of value constitutes a summation, disclosure of which is prohibited by subsection 5.16(1) of *NI 51-101*, if that estimate reflects a combination of estimates, known or available to the *reporting issuer*, for two or more of the subcategories enumerated in that provision. There may be circumstances in which a disclosed estimate was arrived at in accordance with the *COGE Handbook* without combining, and without the *reporting issuer* knowing or having access to, estimates in two or more of those enumerated categories. Disclosure of such an estimate would not generally be considered to constitute a summation for purposes of that provision.

5.10 Prospectus Disclosure

In addition to the general disclosure requirements in *NI 51-101* which apply to prospectuses, the following commentary provides additional guidance on topics of frequent enquiry.

(1) Significant Acquisitions

To the extent that a *reporting issuer* engaged in *oil and gas activities* discloses a significant acquisition in its prospectus, it must disclose sufficient information for a reader to determine how the acquisition affected the *reserves data* and other information previously disclosed in the *reporting issuer's Form 51-101F1*. This requirement stems from Part 6 of *NI 51-101* with respect to *material* changes. This is in addition to specific prospectus requirements for financial information satisfying significant acquisitions.

(2) Disclosure of *Resources*

The disclosure of *resources*, excluding *proved* and *probable reserves*, is generally not mandatory under *NI 51-101*, except for certain disclosure concerning the *reporting issuer's* unproved *properties* and *resource* activities as described in Part 6 of *Form 51-101F1*, which information would be incorporated into the prospectus. Additional disclosure beyond this is voluntary and must comply with Part 5 of *NI 51-101*, as applicable. However, the general securities disclosure obligation of "full, true and plain" disclosure of all *material* facts in a prospectus would require the disclosure of *resources* that are *material* to the *reporting issuer*, even if the disclosure is not mandated by *NI 51-101*.

(3) *Proved* or *Probable Undeveloped Reserves*

Further to the guidance provided in subsection 5.2(6) of this Companion Policy, *proved* or *probable undeveloped reserves* must be reported in the year in which they are recognized. If the *reporting issuer* does not disclose the *proved* or *probable undeveloped reserves* just because it has not yet spent the capital to develop these *reserves*, it may be omitting *material* information, thereby causing the *reserves* disclosure to be misleading. If the *reporting issuer* has filed or intends to file a prospectus, the prospectus might not contain "full, true and plain disclosure" of all *material* facts if it does not contain information about these *proved undeveloped reserves*.

(4) *Reserves* Reconciliation in an Initial Public Offering

In an initial public offering, if the *reporting issuer* does not have a *reserves* report as at its prior year-end, or if this report does not provide the information required to carry out a *reserves* reconciliation pursuant to item 4.1 of *Form 51-101F1*, the *CSA* may consider granting relief from the requirement to provide the *reserves* reconciliation. A condition of the relief may include a description in the prospectus of relevant changes in any of the *reserve* change categories of the *reserves* reconciliation.

(5) Relief to Provide More Recent *Form 51-101F1* Information in a Prospectus

If a *reporting issuer* is filing a preliminary prospectus and wishes to disclose *reserves data* and other *oil* and *gas* information as at a more recent date than its applicable year-end date, the *CSA* may consider relieving the *reporting issuer* of the requirement to disclose the *reserves data* and other information as at year-end.

A *reporting issuer* may determine that its obligation to provide "full, true and plain disclosure" obliges it to include in its prospectus *reserves data* and other *oil* and *gas* information as at a date more recent than specified in the prospectus requirements. The prospectus requirements state that the information must be as at the *reporting issuer's* most recent financial year-end in respect of which the prospectus includes financial statements.

CSA staff may consider granting relief on a case-by-case basis to permit a *reporting issuer* in these circumstances to include in its prospectus the *oil* and *gas* information prepared with an *effective date* more recent than the financial year-end date, without also including the corresponding information effective as at the year-end date. A consideration for granting this relief may include disclosure of *Form 51-101F1* information with an *effective date* that coincides with the date of interim financial statements. The *reporting issuer* should request such relief in the covering letter accompanying its preliminary prospectus. The grant of the relief would be evidenced by the prospectus receipt.

PART 6 MATERIAL CHANGE DISCLOSURE

6.1 Changes from Filed Information

Part 6 of *NI 51-101* requires the inclusion of specified information in disclosure of certain *material* changes.

The information to be filed each year under Part 2 of *NI 51-101* is prepared as at, or for a period ended on, the *reporting issuer's* most recent financial year-end. That date is the *effective date* referred to in subsection 6.1(1) of *NI 51-101*. When a *material* change occurs after that date, the filed information may no longer, as a result of the *material* change, convey meaningful information, or the original information may have become misleading in the absence of updated information.

Part 6 of *NI 51-101* requires that the disclosure of the *material* change include a discussion of the *reporting issuer's* reasonable expectation of how the *material* change has affected the *reporting issuer's reserves data* and other information contained in its filed disclosure. This would not require that an *evaluation* be carried out. However, the *reporting issuer* should ensure it complies with the general disclosure requirements set out in Part 5, as applicable. For example, if the *material* change report discloses an updated *reserves* estimate, this should be prepared in accordance with the *COGE Handbook* and by a *qualified reserves evaluator or auditor*. The continuity of ongoing disclosure, including the disclosure of material changes as they happen, is an important factor in keeping investors informed of a *reporting issuer's* business.

This *material* change disclosure can reduce the likelihood of investors being misled, and maintain the usefulness of the original filed *oil* and *gas* information when the two are read together.

Appendix 1
Sample *Reserves Data* Disclosure

Format of Disclosure

NI 51-101 and *Form 51-101F1* do not mandate the format of the disclosure of *reserves data* and related information by *reporting issuers*. However, the *CSA* encourages *reporting issuers* to use the format presented in this Appendix.

Whatever format and level of detail a *reporting issuer* chooses to use in satisfying the requirements of *NI 51-101*, the objective should be to enable reasonable investors to understand and assess the information, and compare it to corresponding information presented by the *reporting issuer* for other reporting periods or to similar information presented by other *reporting issuers*, in order to be in a position to make informed investment decisions concerning securities of the *reporting issuer*.

A logical and legible layout of information, use of descriptive headings, and consistency in terminology and presentation from document to document and from period to period, are all likely to further that objective.

Reporting issuers and their advisers are reminded of the *materiality* standard under section 1.4 of *NI 51-101*, and of the instructions in *Form 51-101F1*.

See also sections 1.4, 2.2 and 2.3 and subsections 2.7(8) and 2.7(9) of Companion Policy 51-101.

Sample Tables

The following sample tables provide an example of how certain of the *reserves data* might be presented in a manner consistent with *NI 51-101*.

These sample tables do not reflect all of the information required by *Form 51-101F1*, and they have been simplified to reflect *reserves* in one country only. For the purpose of illustration, the sample tables also incorporate information not mandated by *NI 51-101* but which *reporting issuers* might wish to include in their disclosure; shading indicates this non-mandatory information.

SUMMARY OF OIL AND GAS RESERVES
as of December 31, 2015
FORECAST PRICES AND COSTS

	RESERVES[(1)]							
	LIGHT CRUDE OIL AND MEDIUM CRUDE OIL		HEAVY CRUDE OIL		CONVENTIONAL NATURAL GAS		NATURAL GAS LIQUIDS	
RESERVES CATEGORY	Gross (Mbbl)	Net (Mbbl)	Gross (Mbbl)	Net (Mbbl)	Gross (MMcf)	Net (MMcf)	Gross (Mbbl)	Net (Mbbl)
PROVED								
Developed Producing	xx	xx	xx	xx	xx	xx	xx	xx
Developed Non-Producing	xx	xx	xx	xx	xx	xx	xx	xx
Undeveloped	xx	xx	xx	xx	xx	xx	xx	xx
TOTAL PROVED	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
PROBABLE	xx	xx	xx	xx	xx	xx	xx	xx
TOTAL PROVED PLUS PROBABLE	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx

(1) Other *product types* must be added if *material*.

SUMMARY OF NET PRESENT VALUE OF FUTURE NET REVENUE
as of December 31, 2015
FORECAST PRICES AND COSTS

	NET PRESENT VALUE OF FUTURE NET REVENUE										
	BEFORE INCOME TAXES DISCOUNTED AT (%/year)					AFTER INCOME TAXES DISCOUNTED AT (%/year)					UNIT VALUE BEFORE INCOME TAXES DISCOUNTED AT 10%/year
RESERVES CATEGORY	0 (MM$)	5 (MM$)	10 (MM$)	15 (MM$)	20 (MM$)	0 (MM$)	5 (MM$)	10 (MM$)	15 (MM$)	20 (MM$)	($/Mcf) ($/bbl)
PROVED											
Developed Producing	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Developed Non-Producing	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Undeveloped	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
TOTAL PROVED	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xx
PROBABLE	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
TOTAL PROVED PLUS PROBABLE	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxx

(1) A *reporting issuer* may wish to satisfy its requirement to disclose these unit values by inserting this disclosure for each category of *proved reserves* and *probable reserves*, by *product type*, in the chart for item 2.1(3)(c) of *Form 51-101F1* (see sample chart below entitled Future Net Revenue by Product Type).

(2) The unit values are based on *net reserves* volumes.

Reference: Item 2.1(1) and (2) of *Form 51-101F1*

TOTAL FUTURE NET REVENUE
(UNDISCOUNTED)
as of December 31, 2015
FORECAST PRICES AND COSTS

RESERVES CATEGORY	REVENUE (M$)	ROYALTIES (M$)	OPERATING COSTS (M$)	DEVELOPMENT COSTS (M$)	ABANDONMENT AND RECLAMATION COSTS (M$)	FUTURE NET REVENUE BEFORE INCOME TAXES (M$)	INCOME TAXES (M$)	FUTURE NET REVENUE AFTER INCOME TAXES (M$)
Proved Reserves	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Proved Plus Probable Reserves	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx

Reference: Item 2.1(3)(b) of *Form 51-101F1*

FUTURE NET REVENUE
BY PRODUCT TYPE as of December 31, 2015
FORECAST PRICES AND COSTS

RESERVES CATEGORY	PRODUCT TYPE	FUTURE NET REVENUE BEFORE INCOME TAXES (discounted at 10%/year) (M$)	UNIT VALUE ($/Mcf) ($/bbl)
Proved Reserves	Bitumen	xxx	xxx
	Coal Bed Methane	xxx	xxx
	Conventional Natural Gas (including by-products but excluding solution gas	xxx	xxx
	and by-products from oil wells)	xxx	xxx
	Gas Hydrates	xxx	xxx
	Heavy Crude Oil (including solution gas and other by-products)	xxx	xxx
	Light Crude Oil and Medium Crude Oil (including solution gas and other by-	xxx	xxx
	products)	xxx	xxx
	Natural Gas Liquids	xxx	xxx
	Shale Gas	xxx	xxx
	Synthetic Crude Oil	xxx	xxx
	Synthetic Gas	xxx	xxx
	Tight Oil	xxx	xxx
	Total	xxx	xxx
Proved Plus Probable Reserves	Bitumen	xxx	xxx
	Coal Bed Methane	xxx	xxx
	Conventional Natural Gas (including by-products but excluding solution gas	xxx	xxx
	and by-products from oil wells)	xxx	xxx
	Gas Hydrates	xxx	xxx
	Heavy Crude Oil (including solution gas and other by-products)	xxx	xxx
	Light Crude Oil and Medium Crude Oil (including solution gas and other by-	xxx	xxx
	products)	xxx	xxx
	Natural Gas Liquids	xxx	xxx
	Shale Gas	xxx	xxx
	Synthetic Crude Oil	xxx	xxx
	Synthetic Gas	xxx	xxx
	Tight Oil	xxx	xxx
	Total	xxx	xxx

Reference: Item 2.1(3)(c) of *Form 51-101F1*

SUMMARY OF PRICING ASSUMPTIONS
as of December 31, 2015

CONSTANT PRICES AND COSTS[1]

Year	OIL[2]				NATURAL GAS[2] AECO Gas Price ($Cdn/MMBtu)	NATURAL GAS LIQUIDS FOB Field Gate ($Cdn/bbl)	EXCHANGE RATE[3] ($US/$Cdn)
	WTI Cushing Oklahoma ($US/bbl)	Edmonton Par/Mixed Sweet Blend Price 40° API ($Cdn/bbl)	Hardisty Heavy 12° API ($Cdn/bbl)	Cromer Medium 29.3° API ($Cdn/bbl)			
Historical (Year End)							
2012	xx	xx	xx	xx	xx	xx	xx
2013	xx	xx	xx	xx	xx	xx	xx
2014	xx	xx	xx	xx	xx	xx	xx
2015 (Year End)	xx	xx	xx	xx	xx	xx	xx

(1) This disclosure is triggered by optional supplementary disclosure of item 2.2 of *Form 51-101F1*.

(2) This summary table identifies benchmark reference pricing schedules that might apply to a *reporting issuer*.

(3) The exchange rate used to generate the benchmark reference prices in this table.

Reference: Item 3.1 of *Form 51-101F1*

OPTIONAL SUPPLEMENTARY

SUMMARY OF PRICING AND INFLATION RATE ASSUMPTIONS
as of December 31, 2015
FORECAST PRICES AND COSTS

Year	OIL[1]				NATURAL GAS[1] AECO Gas Price ($Cdn/MMBtu)	NATURAL GAS LIQUIDS FOB Field Gate ($Cdn/bbl)	INFLATION RATES[2] %/Year	EXCHANGE RATE[3] $US/$Cdn
	WTI Cushing Oklahoma $US/bbl	Edmonton Par/Mixed Sweet Blend Price 40° API $Cdn/bbl	Hardisty Heavy 12° API $Cdn/bbl	Cromer Medium 29.3° API $Cdn/bbl				
Historical[4]								
2012	xx	xx	xx	xx	xx	xx	xx	xx
2013	xx	xx	xx	xx	xx	xx	xx	xx
2014	xx	xx	xx	xx	xx	xx	xx	xx
2015	xx	xx	xx	xx	xx	xx	xx	xx
Forecast								
2016	xx	xx	xx	xx	xx	xx	xx	xx
2017	xx	xx	xx	xx	xx	xx	xx	xx
2018	xx	xx	xx	xx	xx	xx	xx	xx
2019	xx	xx	xx	xx	xx	xx	xx	xx
2020	xx	xx	xx	xx	xx	xx	xx	xx
Thereafter	xx	xx	xx	xx	xx	xx	xx	xx

(1) This summary table identifies benchmark reference pricing schedules that might apply to a *reporting issuer*.

(2) Inflation rates for forecasting prices and costs.

(3) Exchange rates used to generate the benchmark reference prices in this table

(4) Item 3.2(1)(b) of *Form 51-101F1* also requires disclosure of the *reporting issuer's* weighted average historical prices for the most recent financial year (2014, in this example).

OPTIONAL SUPPLEMENTARY

Reference: Item 3.2 of *Form 51-101F1*

RECONCILIATION OF
COMPANY GROSS RESERVES
BY PRODUCT TYPE[(1)]
FORECAST PRICES AND COSTS

	LIGHT CRUDE OIL AND MEDIUM CRUDE OIL			HEAVY CRUDE OIL			CONVENTIONAL NATURAL GAS		
FACTORS	Gross Proved (Mbbl)	Gross Probable (Mbbl)	Gross Proved Plus Probable (Mbbl)	Gross Proved (Mbbl)	Gross Probable (Mbbl)	Gross Proved Plus Probable (Mbbl)	Gross Proved (MMcf)	Gross Probable (MMcf)	Gross Proved Plus Probable (MMcf)
December 31, 2014	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Extensions & Improved Recovery	xx	xx	xx	xx	xx	xx	xx	xx	xx
Technical Revisions	xx	xx	xx	xx	xx	xx	xx	xx	xx
Discoveries	xx	xx	xx	xx	xx	xx	xx	xx	xx
Acquisitions	xx	xx	xx	xx	xx	xx	xx	xx	xx
Dispositions	xx	xx	xx	xx	xx	xx	xx	xx	xx
Economic Factors	xx	xx	xx	xx	xx	xx	xx	xx	xx
Production	xx	xx	xx	xx	xx	xx	xx	xx	xx
December 31, 2015	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx

(1) The *reserves* reconciliation must include other *product types*, including *bitumen*, *natural gas liquids*, *synthetic crude oil*, *coal bed methane*, *gas hydrates*, *shale gas* and *synthetic gas*, if *material* for the *reporting issuer*.

Reference: Item 4.1 of *Form 51-101F1*

SUMMARY OF RISKED OIL AND GAS CONTINGENT RESOURCES[1]
as of December 31, 2015
FORECAST PRICES AND COSTS

RESOURCES PROJECT MATURITY SUB-CLASS	CONTINGENT RESOURCES [2]							
	LIGHT CRUDE OIL AND MEDIUM CRUDE OIL		HEAVY CRUDE OIL		CONVENTIONAL NATURAL GAS		NATURAL GAS LIQUIDS	
	Gross (Mbbl)	Net (Mbbl)	Gross (Mbbl)	Net (Mbbl)	Gross (MMcf)	Net (MMcf)	Gross (Mbbl)	Net (Mbbl)
CONTINGENT (2C) Development Pending	xx	xx	xx	xx	xx	xx	xx	xx

(1) This disclosure is triggered by optional disclosure of *contingent resources* in the statement prepared in accordance with item 1 of section 2.1 of *NI 51-101.* Disclosure of risked estimates of volume are required under item 7.1(1)(a) of *Form 51-101F1.*

(2) Other *product types* must be added if *material*.

(3) The disclosure in this table must comply with and include the disclosure required by section 5.9 of *NI 51-101,* including section 5.9(2)(d).

(4) A *reporting issuer* should consider whether the disclosure of *development unclarified* or *development not viable sub-classes contingent resources* in the statement of *reserves data* and other *oil* and *gas* information would be misleading given the uncertainty and risk associated with those estimates. Section 2 of volume 2 of the *COGE Handbook* details *commerciality* factors.

OPTIONAL SUPPLEMENTARY

Reference: Item 7.1(a) of *Form 51-101F1*

SUMMARY OF RISKED NET PRESENT VALUE OF FUTURE NET REVENUE[1]
(CONTINGENT RESOURCES)
as of December 31, 2015
FORECAST PRICES AND COSTS

An estimate of risked net present value of *future net revenue* of *contingent resources* is preliminary in nature and is provided to assist the reader in reaching an opinion on the merit and likelihood of the company proceeding with the required investment. It includes *contingent resources* that are considered too uncertain with respect to the *chance of development* to be classified as *reserves*. There is no certainty that the estimate of risked net present value of *future net revenue* will be realized.

RESOURCES PROJECT MATURITY SUB-CLASS	RISKED NET PRESENT VALUE OF FUTURE NET REVENUE									
	BEFORE INCOME TAXES DISCOUNTED AT (%/year)					AFTER INCOME TAXES DISCOUNTED AT (%/year)				
	0 (MM$)	5 (MM$)	10 (MM$)	15 (MM$)	20 (MM$)	0 (MM$)	5 (MM$)	10 (MM$)	15 (MM$)	20 (MM$)
CONTINGENT (2C) Development Pending	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx

(1) This disclosure is triggered by optional disclosure of *contingent resources* in the statement prepared in accordance with item 1 of section 2.1 of *NI 51-101*

(2) The disclosure in this table must comply with and include the disclosure required by section 5.9 of *NI 51-101.*

OPTIONAL SUPPLEMENTARY

Reference: Item 7.1(b) of *Form 51-101F1*

SUMMARY OF RISKED OIL AND GAS PROSPECTIVE RESOURCES[1]
as of December 31, 2015
VOLUMES

RESOURCES	PROSPECTIVE RESOURCES [2]							
	LIGHT CRUDE OIL AND MEDIUM CRUDE OIL		HEAVY CRUDE OIL		CONVENTIONAL NATURAL GAS		NATURAL GAS LIQUIDS	
	Gross (Mbbl)	Net (Mbbl)	Gross (Mbbl)	Net (Mbbl)	Gross (MMcf)	Net (MMcf)	Gross (Mbbl)	Net (Mbbl)
PROSPECTIVE (Best Estimate)	xx	xx	xx	xx	xx	xx	xx	xx

(1) This disclosure is triggered by optional disclosure of *prospective resources* in the statement prepared in accordance with item 1 of section 2.1 of *NI 51-101.* Disclosure of risked estimates of volume are required under Item 7.2(1) of *Form 51-101F1*

(2) Other *product types* must be added if *material*.

(3) The disclosure in this table must comply with and include the disclosure required by section 5.9 of *NI 51-101*

(4) A *reporting issuer* should consider whether the disclosure of *prospective resources* in the statement of *reserves data* and other *oil* and *gas* information would be misleading given the uncertainty and risk associated with those estimates.

OPTIONAL SUPPLEMENTARY

Reference: Item 7.2(a) of *Form 51-101F1*