Disclosure of Resources other than Reserves under National Instrument 51-101

Standards of Disclosure for Oil and Gas Activities

Introduction

National Instrument 51-101 Standards of Disclosure for Oil and Gas Activities ("NI 51-101") requires all Canadian reporting issuers engaged in oil and gas activities to provide disclosure of their estimated oil and natural gas reserves and related future net revenue on an annual basis. In addition, NI 51-101 permits reporting issuers to disclose estimates of resources (other than reserves) provided that such disclosure satisfies the requirements of NI 51-101. NI 51-101 requires that all estimates of reserves, resources and values attributable to reserves or resources that are disclosed must be prepared or audited in accordance with the Canadian Oil and Gas Evaluation Handbook ("COGE Handbook").

In July 2014, the COGE Handbook was amended to include additional guidelines for the estimation and classification of resources other than reserves. In addition, in December 2014, the Canadian Securities Administrators (the "CSA") published amendments to NI 51-101 that will come into force on July 1, 2015. The amendments to the COGE Handbook and NI 51-101 significantly increase the disclosure requirements for those reporting issuers who provide disclosure of the estimates of resources (other than reserves). Although the amendments to NI 51-101 do not come into effect until July 2015, the amendments to the COGE Handbook are already in force and should be addressed in any disclosure of estimates of resources and values attributable to quantities of resources.

The following is intended to provide a guide to disclosing estimates of volumes or values of resources (other than reserves) and takes into account the recently published amendments to both the COGE Handbook and NI 51-101. This guide also takes into account guidance provided by the CSA, and particularly the Alberta Securities Commission, to provide a framework for issuers to disclose estimates of resources (other than reserves) in a manner that is not misleading and satisfies the legal requirements for such disclosure. However, we do expect that the CSA's views on resource disclosure will evolve and consequently we expect the CSA may require or request that additional disclosure be included when reporting estimates of resources in the future.

Requirements for Disclosure of Estimates of Resources (other than Reserves) Applicable to any Public Disclosure

The following provides a summary of the requirements for disclosure of resources (other than reserves) under NI 51-101 and is applicable to any public disclosure of estimates of a quantity of resources or the value attributable to such resources estimates.

Any disclosure of an estimate of a quantity of resources, or the value attributable to a quantity of resources, must include the following disclosure:

1. The issuer’s interest in the resources.
2. The location of the resources.
3. The product types reasonably expected.
4. The risks and level of uncertainty associated with the recovery of the resources. Both the COGE Handbook and the guidance provided by the CSA have indicated that the risks can be presented either quantitatively or qualitatively; however, if presented qualitatively the risks must not be presented in a boilerplate manner and must be specific to the resources presented. For both contingent resources and prospective resources, the risks are related to the chance of commerciality of such resources. In the case of contingent resources, the chance of commerciality is solely based on the chance of development based on all contingencies required for the re-classification of the contingent resources as reserves being resolved. For prospective resources the chance of commerciality is a product of both the chance of discovery and the chance of development.

5. The resources must be classified in accordance with the COGE Handbook and must be classified into the most specific category of resources applicable. Contingent resources can be further subcategorized by the economic status and project maturity status. Prospective resources can also be subcategorized by project maturity status. A definition of the resource category used for the estimate must also be included. Appendix "A" contains the definitions of the various resource categories under the COGE Handbook and Appendix "B" contains a diagram showing the relationship between the various resource categories and subcategories.

6. The effective date of the estimate.

7. The significant positive and negative factors relevant to the estimate (examples of such factors include lack of infrastructure, expected high abandonment and reclamation costs, a significant lease expiry, prevalence of theft and sabotage in the area, or any legal, capital, political, technological, business or other factor that is highly relevant to the estimate).

8. A description of the applicable project or projects (a project is a defined activity, or set of activities, that provides the basis for the assessment and classification of resources) including the following information:
   (a) the estimated total cost required to achieve commercial production;
   (b) the general timeline of the project, including the estimated date of first commercial production;
   (c) the recovery technology (examples include primary production, cold heavy oil production with sand, horizontal and vertical well multi-stage hydraulic fracturing, water flooding, miscible flooding, polymer flooding, chemical flooding, steam assisted gravity drainage, cyclic steam stimulation and their variants, and mining); and
   (d) whether the project is based on a conceptual or pre-development study.

9. The following cautionary statements:
   (a) In the case of discovered petroleum initially-in-place, contingent resources or discovered unrecoverable petroleum initially-in-place:
       "There is uncertainty that it will be commercially viable to produce any portion of the resources."
   (b) In the case of undiscovered petroleum initially-in-place, prospective resources or undiscovered unrecoverable petroleum initially-in-place:
"There is no certainty that any portion of the resources will be discovered. If discovered, there is no certainty that it will be commercially viable to produce any portion of the resources."

10. There is a general prohibition on disclosing a summation of various categories or subcategories of estimates of resource quantities or values. There are 2 important exceptions:

(a) The issuer may disclose an estimate of total petroleum initially-in-place, discovered petroleum initially-in-place and undiscovered petroleum initially-in-place (each of which represents a summation of various resource categories) if the issuer discloses in proximity to that disclosure an estimate of each of the following (as applicable):

(i) Reserves;
(ii) Contingent resources;
(iii) Prospective resources;
(iv) Unrecoverable portion of discovered petroleum initially-in-place;
(v) Unrecoverable portion of undiscovered petroleum initially-in-place;
(vi) Discovered petroleum initially-in-place; and
(vii) Undiscovered petroleum initially-in-place; or

(b) The issuer may disclose an estimate of total petroleum initially-in-place, discovered petroleum initially-in-place or undiscovered petroleum initially-in-place without disclosing an estimate of each of the sub-categories, if total petroleum initially-in-place, discovered petroleum initially-in-place or undiscovered petroleum initially-in-place is the most specific category that the issuer can assign to the resources and if the issuer discloses in proximity to that disclosure an explanation of why one of these 3 categories is the most specific assignable category (see CSA Notice 51-327 – Revised Guidance on Oil and Gas Disclosure ("CSA Notice 51-327") for further guidance on this subject).

11. An indication of whether the estimate represents a high, low or best case estimate and any disclosure of the high case estimate must also include an estimate of the best and low case.

12. The estimate must have been prepared or audited by a qualified reserves evaluator or auditor and the disclosure must indicate whether the qualified reserves evaluator or auditor is independent.

Requirements for Disclosure of Estimates of Resources (other than Reserves) Applicable to Annual Filings

On an annual basis reporting issuers engaged in oil and gas activities must prepare and file a report disclosing estimates of their proved and probable reserves and related future net revenue estimated using forecast prices and costs. The report must include the information as required by Form 51-101F1 – Statement of Reserves Data and Other Oil and Gas Information ("Form 51-101F1"). Pursuant to the amendments to NI 51-101, Form 51-101F1 has been amended to include additional requirements for reporting issuers who wish to report estimates of contingent or prospective resources in their annual Form 51-101F1 filing. In addition to the requirements listed in the above section, which are applicable to any disclosure of estimates of resources (other than reserves), the following are the additional requirements for disclosure of estimates of resources in a reporting issuer's annual Form 51-101F1 filing:
1. The estimates of contingent resources and prospective resources must have been prepared or audited by an independent qualified reserves evaluator or auditor and the report by the independent qualified reserves evaluator or auditor in Form 51-101F2 included in the annual filings must specifically address the contingent resources data and prospective resources data.

2. The estimates of contingent resources and prospective resources can only be disclosed in an appendix to the annual information form or, for reporting issuers who do not file annual information forms, in an appendix to the reporting issuer's Form 51-101F1 filing.

3. If any estimates of contingent resources are presented, the following disclosure must be included:

   (a) risked estimates of contingent resources presented based on the best estimate (2C) on a gross and net basis for each product type and classified in each applicable project maturity sub-class;

   (b) if the contingent resources are in the development pending sub-class, the risked net present value of such resources calculated using forecast prices and costs for each product type, before deducting future income taxes and using discount rates of 0 percent, 5 percent, 10 percent, 15 percent and 20 percent; and

   (c) (i) the numeric value of the chance of development risk, and (ii) a description of the method of (A) quantifying the chance of development, and (B) estimating the contingent resources adjusted for chance of development risk and the associated risked net present value of future net revenue.

4. If any estimates of prospective resources are presented, the following disclosure must be included:

   (a) risked estimates of prospective resources volumes presented based on the best estimate on a gross and net basis for each product type; and

   (b) (i) the numeric value of the chance of discovery and chance of development, and (ii) a description of the method of (A) quantifying the chance of discovery and chance of development, and (B) estimating the prospective resources adjusted for the chance of discovery and chance of development.

5. Any additional disclosure of the value of contingent resources or prospective resources in project maturity sub-classes other than development pending, must be numerically risked for chance of commerciality and the factors considered respecting chance of commerciality must be explained.

6. The following cautionary statement approximate to any disclosure of the value of contingent or prospective resources:

   "An estimate of risked net present value of future net revenue of [contingent resources][and][prospective 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][and][prospective resources] that are considered too uncertain with respect to the [chance of development][and][chance of discovery] to be classified as reserves. There is uncertainty that the risked net present value of future net revenue will be realized."

Although neither NI 51-101 nor Form 51-101F1 prohibit the disclosure in a reporting issuers annual Form 51-101F1 filing of (a) contingent resources in the estimates of development on-hold, development unclarified or development not viable sub-categories, or (b) prospective resources, the instructions in Form 51-101F1 indicate that reporting issuers should expect that additional scrutiny from the CSA for
such disclosure. This is especially the case if there is a significant degree of uncertainty and risk associated with those estimates.

Form 51-101F1 contains additional guidance and instructions on the disclosure that must be included in any disclosure of estimates of quantities of contingent resources or prospective resources in a reporting issuer’s annual filings. In addition the NI 51-101CP contains a template for disclosure of contingent or prospective resources data in the annual Form 51-101F1 filing.

**Additional Guidance on Disclosure of Resources (other than Reserves)**

This guide is intended to be a checklist of the requirements for disclosing estimates of resources (other than reserves) and does not encompass every scenario that may be applicable to disclosure of estimates of resources (other than reserves) by reporting issuers. Additional guidance and requirements are provided in NI 51-101, Form 51-101 F1 and 51-101CP. In addition, CSA Notice 51-324 – *Glossary to NI-101* ("CSA Notice 51-324") contains a glossary of the various terms used in NI 51-101 and CSA Staff Notice 51-327 provides additional guidance on disclosure of estimates of resources (other than reserves) as well as other topics relating to disclosure relating to oil and gas activities. The ASC also publishes an annual review of its findings relating to the disclosure made by reporting issuers on oil and gas activities, which sets out the ASC's expectations for disclosing resources (other than reserves) and certain other matters. NI 51-101, NI 51-101CP, Form 51-101, CSA Staff Notice 51-324, CSA Staff Notice 51-327 and the ASC's 2014 Oil and Gas Review are available on the ASC's website at [www.albertasecurities.com](http://www.albertasecurities.com).

In addition, the COGE Handbook and in particular, Chapter 5 of Volume 1, which contains detailed information on the definitions of the various categories of reserves and resources, and Chapter 2 of Volume 2, which contains detailed guidelines on classifying resources (other than reserves), should be consulted for reporting issuers and their qualified reserves evaluators estimating or disclosing estimates of reserves or resources. A copy of the COGE Handbook can be purchased from the Society of Petroleum Engineers, Calgary Section (Telephone: 403-930-5454; email: specal@spe.org).

*This Bulletin is intended as general information only and should not be taken as legal advice. Members of Burnet Duckworth & Palmer's Securities Team, listed on the next page, would be pleased to answer any questions or provide further guidance on the matters discussed in this Bulletin in the context of your own specific situation.*
Abouguoush, Syd S. 403-260-0399  ssa@bdplaw.com
Allford, R. Bruce 403-260-0247  rba@bdplaw.com
Bacsalmasi, Nicole 403-260-0253  nbacsalmasi@bdplaw.com
Borich, Brian W. 403-260-0346  bwb@bdplaw.com
Brown, Edward (Ted) 403-260-0298  ebb@bdplaw.com
Brown, Jessica 403-260-0137  jbrown@bdplaw.com
Chetner, Stephen J. 403-260-0265  sjc@bdplaw.com
Clark, Kelsey C. 403-260-0172  kcc@bdplaw.com
Cohen, C. Steven 403-260-0103  csc@bdplaw.com
Cox, Lindsay 403-260-0192  lpc@bdplaw.com
Davidson, Fred D. 403-260-5718  fdd@bdplaw.com
Doelman, Peter 403-260-0110  pdoelman@bdplaw.com
Fridhandler, Daryl S. 403-260-0113  dsf@bdplaw.com
Gangl, Shannon M. 403-260-0279  smg@bdplaw.com
Goldman, Alyson F. 403-260-0258  agoldman@bdplaw.com
Grant, Matt 403-260-0280  mgrant@bdplaw.com
Greenfield, Keith A. 403-260-0309  kag@bdplaw.com
Hoeppner, Jacob 403-806-7874  jhoeppner@bdplaw.com
Holden, Brandon 403-260-0190  beholden@bdplaw.com
Inkster, Bronwyn 403-260-9470  binkster@bdplaw.com
Kearl, Scott D. 403-260-0395  sdk@bdplaw.com
Kidd, James L. 403-260-0181  jlk@bdplaw.com
MacKenzie, Grant A. 403-260-9466  gam@bdplaw.com
Mann, Ravina K. 403-260-0390  rmann@bdplaw.com
Maslechko, William S. 403-260-0377  wsm@bdplaw.com
Mereau, Paul 403-260-0249  pmereau@bdplaw.com
Oke, Jeff T. 403-260-0116  jto@bdplaw.com
Pettie, Alan T. 403-260-0127  atp@bdplaw.com
Reid, Jay P. 403-260-0340  jpr@bdplaw.com
Sandrelli, Michael D. 403-260-0115  mds@bdplaw.com
Tetley, P.L. (Lonny) 403-260-0141  ltetley@bdplaw.com
von Vegesack, Shanlee 403-260-0321  svegesack@bdplaw.com
Welsh, Sylvie J.M. 403-260-0166  swelsh@bdplaw.com
Zawalsky, Grant A. 403-260-0376  gaz@bdplaw.com
APPENDIX "A"
RESOURCES (OTHER THAN RESERVES) DEFINITIONS

The following sets out the applicable definition for each of the resource categories and sub-categories as set out in the COGE Handbook. Please see Appendix "B" for a diagram of the relationship between the resource categories in the COGE Handbook.

"Contingent resources" Definition: Those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations using established technology or technology under development, but which are not currently considered to be commercially recoverable due to one or more contingencies.

Contingencies may include factors such as economic, legal, environmental, political, and regulatory matters or a lack of markets. It is also appropriate to classify as contingent resources the estimated discovered recoverable quantities associated with a project in the early evaluation stage.

"Contingent Resources - economic status undetermined" Definition: Where evaluations are incomplete such that it is premature to identify the economic viability of a project, it is acceptable to note that project economic status is "undetermined".

[This is an economic status sub-category for contingent resources.]

"Development not viable" Definition: Where no further data acquisition or evaluation is currently planned and hence there is a low chance of development.

[This is a project maturity sub-category for contingent resources. Relative to development unclarified, development on hold, and development pending, development not viable represents the lowest chance of commerciality.]

"Development on hold" Definition: Where there is a reasonable chance of development, but there are major non-technical contingencies to be resolved that are usually beyond the control of the operator.

[This is a project maturity sub-category for contingent resources. With respect to the chance of commerciality, represents a higher chance of commerciality relative to development unclarified but a lower chance of commerciality relative to development pending.]

"Development pending" Definition: Where resolution of the final conditions for development is being actively pursued (high chance of development).

[This is a project maturity sub-category for contingent resources. Relative to development not viable, development unclarified and development on hold, development pending represents the highest chance of commerciality.]
"Development unclarified" Definition: When the evaluation is incomplete and there is ongoing activity to resolve any risks or uncertainties.

[This is a project maturity sub-category for contingent resources. With respect to the chance of commerciality, represents a higher chance of commerciality relative to development not viable but a lower chance of commerciality relative to development on hold.]

"Discovered petroleum initially-in-place" Definition: That quantity of petroleum that is estimated, as of a given date, to be contained in known accumulations prior to production.

The recoverable portion of discovered petroleum initially-in-place includes production, reserves and contingent resources; the remainder is unrecoverable.

"Discovered unrecoverable petroleum initially-in-place" Definition: That portion of discovered petroleum initially-in-place which is estimated, as of a given date, not to be recoverable by future development projects.

A portion of these quantities may become recoverable in the future as commercial circumstances change or technological developments occur; the remaining portion may never be recovered due to the physical/chemical constraints represented by subsurface interaction of fluids and reservoir rocks.

"Economic contingent resources" Definition: Those contingent resources that are currently economically recoverable.

[This is an economic status sub-category of contingent resources.]

"Lead" Definition: A potential accumulation within a play that requires more data acquisition and/or evaluation in order to be classified as a prospect.

[This is a project maturity sub-class for prospective resources. A lead is between a play and prospect with respect to the chance of commerciality.]

"Play" Definition: A family of geologically similar fields, discoveries, prospects, and leads.

[This is a project maturity sub-category for prospective resources. Relative to lead and prospect, play represents the lowest chance of commerciality.]

"Prospect" Definition: A geographic or stratigraphic area, in which the reporting issuer owns or intends to own one or more oil and gas interests, which is geographically defined on the basis of geological data and which is reasonably anticipated to contain at least one reservoir or part of a reservoir of oil and gas.

[This is a project maturity sub-category for prospective resources. Relative to play and lead, prospect represents the highest chance of commerciality.]
"Prospective resources"  
**Definition:** Those quantities of petroleum estimated, as of a given date, to be potentially recoverable from undiscovered accumulations by application of future development projects.

Prospective resources have both an associated chance of discovery and a chance of development.

"Sub-economic contingent resources"  
**Definition:** Those contingent resources that are not currently economically recoverable. There should be a reasonable expectation of a change in economic conditions within the near future that will result in them becoming economically viable.

(This is an economic status sub-category of contingent resources.)

"Total petroleum initially-in-place"  
**Definition:** That quantity of petroleum that is estimated to exist originally in naturally occurring accumulations.

It includes that quantity of petroleum that is estimated, as of a given date, to be contained in known accumulations, prior to production, plus those estimated quantities in accumulations yet to be discovered.

"Undiscovered petroleum initially-in-place"  
**Definition:** That quantity of petroleum that is estimated, on a given date, to be contained in accumulations yet to be discovered.

The recoverable portion of undiscovered petroleum initially-in-place is referred to as prospective resources; the remainder is unrecoverable.

"Undiscovered unrecoverable petroleum initially-in-place"  
**Definition:** That portion of undiscovered petroleum initially-in-place which is estimated, as of a given date, not to be recoverable by future development projects.

A portion of these quantities may become recoverable in the future as commercial circumstances change or technological developments occur; the remaining portion may never be recovered due to the physical/chemical constraints represented by subsurface interaction of fluids and reservoir rocks.
APPENDIX B
RESERVES AND RESOURCES CLASSIFICATION
AS SET OUT IN THE COGE HANDBOOK

Total Petroleum
Initially-in-Place

Discovered Petroleum
Initially-in-Place

Undiscovered Petroleum
Initially-in-Place

Cumulative
Production

Reserves

Contingent
Resources*

Discerned
Unrecoverable
Petroleum
Initially-in-Place

Prospective Resources*

Undiscovered
Unrecoverable
Petroleum
Initially-in-Place

1P – Proved
(P90)

2P – Probable
(P50)

3P – Possible
(P10)

1C – Low
Estimate
(P90)

2C – Best
Estimate
(P50)

3C – High
Estimate
(P10)

Low Estimate
(P90)

Best Estimate
(P50)

High Estimate
(P10)

* For a breakdown of the categories of contingent resources and prospective resources see the next page.