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NATIONAL INSTRUMENT 51-101
STANDARDS OF DISCLOSURE FOR OIL AND GAS ACTIVITIES

PART 1 APPLICATION AND TERMINOLOGY

1.1 Definitions - In this *Instrument*:

"*abandonment and reclamation costs*" means all costs associated with the process of restoring a *reporting issuer's* property that has been disturbed by *oil and gas activities* to a standard imposed by applicable government or regulatory authorities;

"*alternate reference point*" means a location at which quantities and values of a *product type* are measured before the *first point of sale*;

"*annual information form*" has the same meaning as "AIF" in NI 51-102;

"*analogous information*" means information about an area outside the area in which the *reporting issuer* has an interest or intends to acquire an interest, which is referenced by the *reporting issuer* for the purpose of drawing a comparison or conclusion to an area in which the *reporting issuer* has an interest or intends to acquire an interest, which comparison or conclusion is reasonable, and includes:

- (i) historical information concerning *reserves*;
- (ii) estimates of the volume or value of *reserves*;
- (iii) historical information concerning *resources*;
- (iv) estimates of the volume or value of *resources*;
- (v) historical *production* amounts;
- (vi) *production* estimates; or
- (vii) information concerning a *field, well, basin or reservoir*;

"*anticipated results*" means information that may, in the opinion of a reasonable person, indicate the potential value or quantities of *resources* in respect of the *reporting issuer's resources* or a portion of its *resources* and includes:

- (i) estimates of volume;
- (ii) estimates of value;
- (iii) areal extent;
- (iv) pay thickness;
- (v) flow rates; or
- (vi) hydrocarbon content;

"*bitumen*" means a naturally occurring solid or semi-solid *hydrocarbon*

- (a) consisting mainly of heavier *hydrocarbons*, with a viscosity greater than 10,000 millipascal-seconds (mPa·s) or 10,000 centipoise (cP) measured at the *hydrocarbon's* original temperature in the *reservoir* and at atmospheric pressure on a gas-free basis, and
- (b) that is not primarily recoverable at economic rates through a well without the implementation of enhanced recovery methods;

"*BOEs*" means barrels of *oil* equivalent;

"*by-product*" means a substance that is recovered as a consequence of producing a *product type*;

"*coal bed methane*" means *natural gas* that

- (a) primarily consists of methane, and
- (b) is contained in a coal deposit;

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

"contingent resources data" means

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

"conventional natural gas" means *natural gas* that has been generated elsewhere and has migrated as a result of hydrodynamic forces and is trapped in discrete *accumulations* by seals that may be formed by localized structural, depositional or erosional geological features;

"effective date", in respect of information, means the date as at which, or for the period ended on which, the information is provided;

"first point of sale" means the first point after initial *production* at which there is a transfer of ownership of a *product type*;

"forecast prices and costs" means future prices and costs that are:

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

"foreign geographic area" means a geographic area outside North America within one country or including all or portions of a number of countries;

"Form 51-101F1" means Form 51-101F1 *Statement of Reserves Data and Other Oil and Gas Information*;

"Form 51-101F2" means Form 51-101F2 *Report on Reserves Data by Independent Qualified Reserves Evaluator or Auditor*;

"Form 51-101F3" means Form 51-101F3 *Report of Management and Directors on Oil and Gas Disclosure*;

"Form 51-101F4" means Form 51-101F4 *Notice of Filing of 51-101F1 Information*;

"Form 51-101F5" means Form 51-101F5 *Notice of Ceasing to Engage in Oil and Gas Activities*;

"*future net revenue*" means a forecast of revenue, estimated using *forecast prices and costs* or *constant prices and costs*, arising from the anticipated development and production of *resources*, net of the associated royalties, *operating costs*, *development costs*, and *abandonment and reclamation costs*;

"*gas hydrate*" means a naturally occurring crystalline substance composed of water and gas in an ice-lattice structure;

"*heavy crude oil*" means *crude oil* with a relative density greater than 10 degrees API gravity and less than or equal to 22.3 degrees API gravity;

"*hydrocarbon*" means a compound consisting of hydrogen and carbon, which, when naturally occurring, may also contain other elements such as sulphur;

"*independent*", in respect of the relationship between a *reporting issuer* and a person or company, means a relationship between the *reporting issuer* and that person or company in which there is no circumstance that could, in the opinion of a reasonable person aware of all relevant facts, interfere with that person's or company's exercise of judgment regarding the preparation of information which is used by the *reporting issuer*;

"*light crude oil*" means *crude oil* with a relative density greater than 31.1 degrees API gravity;

"*McfGEs*" means thousand cubic feet of *gas* equivalent;

"*medium crude oil*" means *crude oil* with a relative density greater than 22.3 degrees API gravity and less than or equal to 31.1 degrees API gravity;

"*natural gas*" means a naturally occurring mixture of *hydrocarbon* gases and other gases;

"*natural gas liquids*" means those *hydrocarbon* components that can be recovered from *natural gas* as a liquid including, but not limited to, ethane, propane, butanes, pentanes plus, and condensates;

"*NI 14-101*" means National Instrument 14-101 *Definitions*;

"*NI 51-102*" means National Instrument 51-102 *Continuous Disclosure Obligations*;

"*oil and gas activities*" includes the following:

- (a) searching for a *product type* in its natural location;
- (b) acquiring *property* rights or a *property* for the purpose of exploring for or removing *product types* from their natural locations;
- (c) any activity necessary to remove *product types* from their natural locations, including construction, drilling, mining and production, and the acquisition, construction, installation and maintenance of

field gathering and storage systems including treating, *field* processing and *field* storage;

- (d) producing or manufacturing of *synthetic crude oil* or *synthetic gas*;

but does not include any of the following:

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

"*oil and gas metric*" means a numerical measure of a *reporting issuer's oil and gas activities*;

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

"*product type*" means any of the following:

- (a) *bitumen*;
- (b) *coal bed methane*;
- (c) *conventional natural gas*;
- (d) *gas hydrates*;
- (e) *heavy crude oil*;
- (f) *light crude oil* and *medium crude oil* combined;
- (g) *natural gas liquids*;
- (h) *shale gas*;
- (i) *synthetic crude oil*;
- (j) *synthetic gas*;
- (k) *tight oil*;

"*professional organization*" means a self-regulatory organization of engineers, geologists, other geoscientists or other professionals whose professional practice includes *reserves evaluations* or *reserves audits*, that:

- (i) admits members primarily on the basis of their educational qualifications;

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

"*prospective resources data*" means

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

"*qualified reserves auditor*" means an individual who:

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

"*qualified reserves evaluator*" means an individual who:

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

"*qualified reserves evaluator or auditor*" means a *qualified reserves auditor* or a *qualified reserves evaluator*;

"*reserves*" means *proved*, *probable* or *possible reserves*;

"*reserves data*" means an estimate of *proved reserves* and *probable reserves* and related *future net revenue*, estimated using *forecast prices and costs*;

"*risked*" means adjusted for the probability of loss or failure in accordance with the *COGE Handbook*;

"shale gas" means *natural gas*

- (a) contained in dense organic-rich rocks, including low-permeability shales, siltstones and carbonates, in which the *natural gas* is primarily adsorbed on the kerogen or clay minerals, and
- (b) that usually requires the use of hydraulic fracturing to achieve economic production rates;

"supporting filing" means a document filed by a *reporting issuer* with a *securities regulatory authority*;

"synthetic crude oil" means a mixture of liquid *hydrocarbons* derived by upgrading *bitumen*, *kerogen* or other substances such as coal, or derived from gas to liquid conversion and may contain sulphur or other compounds;

"synthetic gas" means a gaseous fluid

- (a) generated as a result of the application of an in-situ transformation process to coal or other *hydrocarbon-bearing rock*; and
- (b) comprised of not less than 10% by volume of methane;

"tight oil" means *crude oil*

- (a) contained in dense organic-rich rocks, including low-permeability shales, siltstones and carbonates, in which the *crude oil* is primarily contained in microscopic pore spaces that are poorly connected to one another, and
- (b) that typically requires the use of hydraulic fracturing to achieve economic production rates.

1.2 **COGE Handbook Definitions**

- (1) Terms used in this *Instrument* but not defined in this *Instrument*, *NI 14-101* or the securities statute in the *jurisdiction*, and defined or interpreted in the *COGE Handbook*, have the meaning or interpretation ascribed to those terms in the *COGE Handbook*.
- (2) In the event of a conflict or inconsistency between the definition of a term in this *Instrument*, *NI 14-101* or the securities statute in the *jurisdiction* and the meaning ascribed to the term in the *COGE Handbook*, the definition in this *Instrument*, *NI 14-101* or the securities statute in the *jurisdiction*, as the case may be, applies.

1.3 **Applies to Reporting Issuers Only**

This *Instrument* applies only to *reporting issuers* engaged, directly or indirectly, in *oil and gas activities*.

1.4 Materiality Standard

- (1) This *Instrument* applies only in respect of information that is *material* in respect of a *reporting issuer*.
- (2) For the purpose of subsection (1), information is *material* in respect of a *reporting issuer* if it would be likely to influence a decision by a reasonable investor to buy, hold or sell a security of the *reporting issuer*.

PART 2 ANNUAL FILING REQUIREMENTS

2.1 Reserves Data and Other Oil and Gas Information

A *reporting issuer* must, not later than the date on which it is required by *securities legislation* to file audited financial statements for its most recent financial year, file with the *securities regulatory authority* the following:

1. **Statement of Reserves Data and Other Information** - a statement of the *reserves data* and other information specified in *Form 51-101F1*, as at the last day of the *reporting issuer's* most recent financial year and for the financial year then ended;
2. **Report of Independent Qualified Reserves Evaluator or Auditor** - a report in accordance with *Form 51-101F2* that is:
 - (a) included in, or filed concurrently with, the document filed under item 1; and
 - (b) executed by one or more *qualified reserves evaluators or auditors* each of whom is *independent* of the *reporting issuer* and who must have,
 - (i) in the aggregate,
 - (A) *evaluated or audited* at least 75 percent of the *future net revenue*, calculated using a discount rate of 10 percent, attributable to *proved plus probable reserves*, as reported in the statement filed or to be filed under item 1, and
 - (B) *reviewed* the balance of that *future net revenue*, and
 - (ii) *evaluated or audited* the *contingent resources data or prospective resources data* reported in the statement filed or to be filed under item 1.
3. **Report of Management and Directors** – a report in accordance with *Form 51-101F3* that
 - (a) refers to the information filed or to be filed under items 1 and 2;

- (b) confirms the responsibility of management of the *reporting issuer* for the content and filing of the statement referred to in item 1 and for the filing of the report referred to in item 2;
- (c) confirms the role of the board of directors in connection with the information referred to in paragraph (b);
- (d) is contained in, or filed concurrently with, the statement filed under item 1; and
- (e) is executed
 - (i) by two *officers* of the *reporting issuer*, one of whom is the chief executive officer, and
 - (ii) on behalf of the board of directors, by
 - (A) any two directors of the *reporting issuer*, other than the persons referred to in subparagraph (i) above, or
 - (B) if the *reporting issuer* has only three directors, two of whom are the persons referred to in subparagraph (i), all of the directors of the *reporting issuer*.

2.2 [Repealed.]

2.3 Inclusion in *Annual Information Form*

- (1) The requirements of section 2.1 may be satisfied by including the information specified in section 2.1 in an *annual information form* filed within the time specified in section 2.1.
- (2) A *reporting issuer* that adopts the approach described in subsection (1) must, concurrently with filing its *annual information form*, file with the *securities regulatory authority* a notice of filing in accordance with *Form 51-101F4*.

2.4 Reservation in Report of *Qualified Reserves Evaluator or Auditor*

- (1) If a *qualified reserves evaluator or auditor* cannot report without *reservation* on *reserves data*, *contingent resources data* or *prospective resources data*, the *reporting issuer* must ensure that the report of the *qualified reserves evaluator or auditor* prepared for the purpose of item 2 of section 2.1 sets out the cause of the *reservation* and the effect, if known to the *qualified reserves evaluator or auditor*, on the *reserves data*, *contingent resources data*, or *prospective resources data*.
- (2) A report containing a *reservation*, the cause of which can be removed by the *reporting issuer*, does not satisfy the requirements of item 2 of section 2.1.

PART 3 RESPONSIBILITIES OF REPORTING ISSUERS AND DIRECTORS

3.1 Interpretation

A reference to a board of directors in this Part means, for a *reporting issuer* that does not have a board of directors, those individuals whose authority and duties in respect of that *reporting issuer* are similar to those of a board of directors.

3.2 Reporting Issuer to Appoint Independent Qualified Reserves Evaluator or Independent Qualified Reserves Auditor

- (1) A *reporting issuer* must appoint one or more *qualified reserves evaluators*, or *qualified reserves auditors*, each of whom is *independent* of the *reporting issuer*, and must direct each appointed evaluator or auditor to report to the board of directors of the *reporting issuer* on the *reserves data* disclosed in the statement prepared for the purpose of item 1 of section 2.1.
- (2) If a *reporting issuer* discloses *contingent resources data* or *prospective resources data* in a statement prepared for the purpose of item 1 of section 2.1, the *reporting issuer* must appoint one or more *qualified reserves evaluators* or *qualified reserves auditors* and must direct each appointed evaluator or auditor to report to the board of directors of the *reporting issuer* on all *contingent resources data* and *prospective resources data* included in the statement.

3.3 Reporting Issuer to Make Information Available to Qualified Reserves Evaluator or Auditor

A *reporting issuer* must make available to the *qualified reserves evaluators* or *auditors* that it appoints under section 3.2 all information reasonably necessary to enable the *qualified reserves evaluators* or *auditors* to provide a report that will satisfy the applicable requirements of this *Instrument*.

3.4 Certain Responsibilities of Board of Directors

The board of directors of a *reporting issuer* must

- (a) review, with reasonable frequency, the *reporting issuer's* procedures relating to the disclosure of information with respect to *oil and gas activities*, including its procedures for complying with the disclosure requirements and restrictions of this *Instrument*;
- (b) review each appointment under section 3.2 and, in the case of any proposed change in such appointment, determine the reasons for the proposal and whether there have been disputes between the appointed *qualified reserves evaluator or auditor* and management of the *reporting issuer*;
- (c) review, with reasonable frequency, the *reporting issuer's* procedures for providing information to the *qualified reserves evaluators* or *auditors* who

report on *reserves data, contingent resources data* or *prospective resources data* for the purposes of this *Instrument*;

- (d) before approving the filing of *reserves data, contingent resources data* or *prospective resources data* and the report of the *qualified reserves evaluators or auditors* thereon referred to in section 2.1, meet with management and each *qualified reserves evaluator or auditor* appointed under section 3.2, to
 - (i) determine whether any restrictions affect the ability of the *qualified reserves evaluator or auditor* to report on *reserves data, contingent resources data* or *prospective resources data* without reservation; and
 - (ii) review the *reserves data, contingent resources data* or *prospective resources data* and the report of the *qualified reserves evaluator or auditor* thereon; and
- (e) review and approve
 - (i) the content and filing, under section 2.1, of the statement referred to in item 1 of section 2.1;
 - (ii) the filing, under section 2.1, of the report referred to in item 2 of section 2.1; and
 - (iii) the content and filing, under section 2.1, of the report referred to in item 3 of section 2.1.

3.5 Reserves Committee

- (1) The board of directors of a *reporting issuer* may, subject to subsection (2), delegate the responsibilities set out in section 3.4 to a committee of the board of directors, provided that a majority of the members of the committee
 - (a) are individuals who are not and have not been, during the preceding 12 months:
 - (i) an officer or employee of the *reporting issuer* or of an affiliate of the *reporting issuer*;
 - (ii) a person who beneficially owns 10 percent or more of the outstanding voting securities of the *reporting issuer*; or
 - (iii) a relative of a person referred to in subparagraph (a)(i) or (ii), residing in the same home as that person; and
 - (b) are free from any business or other relationship which could reasonably be seen to interfere with the exercise of their independent judgement.

- (2) Despite subsection (1), a board of directors of a *reporting issuer* must not delegate its responsibility under paragraph 3.4(e) to approve the content or the filing of information.
- (3) A board of directors that has delegated responsibility to a committee pursuant to subsection (1) must solicit the recommendation of that committee as to whether to approve the content and filing of information for the purpose of paragraph 3.4(e).

3.6 [Repealed.]

PART 4 MEASUREMENT

4.1 [Repealed.]

4.2 Consistency in Dates

The date or period with respect to which the effects of an event or transaction are recorded in a *reporting issuer's* annual financial statements must be the same as the date or period with respect to which they are first reflected in the *reporting issuer's* annual *reserves data* disclosure under Part 2.

PART 5 REQUIREMENTS APPLICABLE TO ALL DISCLOSURE

5.1 Application of Part 5

This Part applies to disclosure made by or on behalf of a *reporting issuer*

- (a) to the public;
- (b) in any document filed with a *securities regulatory authority*; or
- (c) in other circumstances in which, at the time of making the disclosure, the *reporting issuer* knows, or ought reasonably to know, that the disclosure is or will become available to the public.

5.2 Disclosure of Reserves and Other Information

- (1) If a *reporting issuer* makes disclosure of *reserves* or other information of a type that is specified in *Form 51-101F1*, the *reporting issuer* must ensure that the disclosure satisfies the following requirements:
 - (a) estimates of *reserves* or *future net revenue* must
 - (i) disclose the *effective date* of the estimate;
 - (ii) have been prepared or audited by a *qualified reserves evaluator or auditor*;
 - (iii) have been prepared or audited in accordance with the *COGE Handbook*;

- (iv) have been made assuming that development of each *property* in respect of which the estimate is made will occur, without regard to the likely availability to the *reporting issuer* of funding required for that development; and
 - (v) in the case of estimates of *possible reserves* or related *future net revenue* disclosed in writing, also include a cautionary statement that is proximate to the estimate to the following effect:

“Possible reserves are those additional reserves that are less certain to be recovered than probable reserves. There is a 10% probability that the quantities actually recovered will equal or exceed the sum of proved plus probable plus possible reserves.”;
- (b) for the purpose of determining whether *reserves* should be attributed to a particular undrilled *property*, reasonably estimated future abandonment and reclamation costs related to the *property* must have been taken into account;
 - (c) in disclosing aggregate *future net revenue* the disclosure must comply with the requirements for the determination of *future net revenue* specified in *Form 51-101F1*; and
 - (d) the disclosure must be consistent with the corresponding information, if any, contained in the statement most recently filed by the *reporting issuer* with the *securities regulatory authority* under item 1 of section 2.1, except to the extent that the statement has been supplemented or superseded by a report of a material change filed by the *reporting issuer* with the *securities regulatory authority*.
- (2) Disclosure referred to under subsection (1) must indicate whether the estimates of *reserves* or *future net revenue* were prepared by an *independent qualified reserves evaluator* or *qualified reserves auditor*.

5.3 Classification of Reserves and of Resources Other than Reserves

- (1) *Reserves* or *resources* other than *reserves* must be disclosed using the applicable terminology and category set out in the *COGE Handbook* and must be classified in the most specific category of *reserves* or *resources* other than *reserves* in which the *reserves* or *resources* other than *reserves* can be classified.
- (2) Despite subsection (1), where the applicable terminology set out in the *COGE Handbook* for the disclosure of *resources* is *total petroleum initially-in-place*, *discovered petroleum initially-in-place* or *undiscovered petroleum initially-in-place*, the *reporting issuer* may depart from the applicable terminology by substituting, for the word “*petroleum*”, reference to the specific *product type* of the *resource*.

5.4 Oil and Gas Reserves and Sales

- (1) Disclosure of *resources* or of sales of *product types* or associated *by-products* must be made with respect to the *first point of sale*.
- (2) Despite subsection (1), a *reporting issuer* may disclose *resources* or sales of *product types* or associated *by-products* with respect to an *alternate reference point* if, to a reasonable person, the *resources*, *product types* or associated *by-products* would be marketable at the *alternate reference point*.
- (3) If a *reporting issuer* discloses *resources* or sales of *product types* or associated *by-products* with respect to an *alternate reference point*, the *reporting issuer* must
 - (a) state that the disclosure is made with respect to an *alternate reference point*,
 - (b) disclose the location of the *alternate reference point*, and
 - (c) explain why disclosure is not being made with respect to the *first point of sale*.

5.5 Recovery of Product Types or By-Products

Disclosure of *product types* or *by-products*, including *natural gas liquids* and sulphur must be made in respect only of volumes that have been or are to be recovered prior to the *first point of sale*, or an *alternate reference point*, as applicable.

5.6 Future Net Revenue Not Fair Market Value

Disclosure of an estimate of *future net revenue*, whether calculated without discount or using a discount rate, must include a statement to the effect that the estimated values disclosed do not represent fair market value.

5.7 [Repealed.]

5.8 Disclosure of Less Than All Reserves

If a *reporting issuer* that has more than one *property* makes written disclosure of any *reserves* attributable to a particular *property* **the disclosure must include a cautionary statement to the effect that**

"The estimates of reserves and future net revenue for individual properties may not reflect the same confidence level as estimates of reserves and future net revenue for all properties, due to the effects of aggregation"; and

- (a) the document containing the disclosure of any *reserves* attributable to one *property* must also disclose total *reserves* of the same classification for all *properties* of the *reporting issuer* in the same country (or, if appropriate and not misleading, in the same *foreign geographic area*).

5.9 Disclosure of Resources Other than Reserves

- (1) If a *reporting issuer* discloses *anticipated results* from *resources* which are not currently classified as *reserves*, the *reporting issuer* must also disclose in writing, in the same document or in a *supporting filing*:
 - (a) the *reporting issuer's* interest in the *resources*;
 - (b) the location of the *resources*;
 - (c) the *product types* reasonably expected;
 - (d) the risks and the level of uncertainty associated with recovery of the *resources*; and
 - (e) in the case of *unproved property*, if its value is disclosed,
 - (i) the basis of the calculation of its value; and
 - (ii) whether the value was prepared by an *independent party*.
- (2) If disclosure referred to in subsection (1) includes an estimate of a quantity of *resources* other than *reserves* in which the *reporting issuer* has an interest or intends to acquire an interest, or an estimated value attributable to an estimated quantity, the estimate must:
 - (a) have been prepared or audited by a *qualified reserves evaluator or auditor*;
 - (b) have been prepared or audited in accordance with the *COGE Handbook*;
 - (c) be classified in the most specific category of *resources* other than *reserves*, as required by section 5.3; and

- (d) be accompanied by the following information:
 - (i) a definition of the *resources* category used for the estimate;
 - (ii) the *effective date* of the estimate;
 - (iii) the significant positive and negative factors relevant to the estimate;
 - (iii.1) a description of the applicable project or projects including the following:
 - (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;
 - (D) whether the project is based on a *conceptual or pre-development study*;
 - (iv) in respect of *contingent resources*, the specific contingencies which prevent the classification of the *resources* as *reserves*; and
 - (v) a cautionary statement that is proximate to the estimate to the effect that:
 - (A) in the case of *discovered resources* or a subcategory of *discovered resources* other than *reserves*:

“There is uncertainty that it will be commercially viable to produce any portion of the resources.”; or
 - (B) in the case of *undiscovered resources* or a subcategory of *undiscovered resources*:

“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.”
- (3) Paragraphs (1)(d) and (e) and subparagraphs (2)(d)(iii), (iii.1) and (iv) do not apply if:
- (a) the *reporting issuer* includes in the written disclosure a reference to the title and date of a previously filed document that complies with those requirements; and

- (b) the *resources* in the written disclosure, taking into account the specific *properties* and interests reflected in the *resources* estimate or other *anticipated result*, are *materially* the same *resources* addressed in the previously filed document.
- (4) Any disclosure made under subsection (1) or (2) must indicate whether the *anticipated results* from *resources* which are not currently classified as *reserves* or the estimate of a quantity of *resources* other than *reserves* were prepared by an *independent qualified reserves evaluator or auditor*.

5.10 Analogous Information

- (2) Sections 5.2, 5.3, 5.9 and 5.16 do not apply to the disclosure of *analogous information* provided that the *reporting issuer* discloses the following:
 - (a) the source and date of the *analogous information*;
 - (b) whether the source of the *analogous information* was *independent*;
 - (c) if the *reporting issuer* is unable to confirm that the *analogous information* was prepared by a *qualified reserves evaluator or auditor* or in accordance with the *COGE Handbook*, a cautionary statement to that effect proximate to the disclosure of the *analogous information*; and
 - (d) the relevance of the *analogous information* to the *reporting issuer's oil and gas activities*.
- (3) For greater certainty, if a *reporting issuer* discloses information that is an *anticipated result*, an estimate of a quantity of *reserves* or *resources*, or an estimate of value attributable to an estimated quantity of *reserves* or *resources* for an area in which it has an interest or intends to acquire an interest, that is based on an extrapolation from *analogous information*, sections 5.2, 5.3, 5.9 and 5.16 apply to the disclosure of the information.

5.11 [Repealed.]

5.12 [Repealed.]

5.13 [Repealed.]

5.14 Disclosure Using Oil and Gas Metrics

- (1) If a *reporting issuer* discloses an *oil and gas metric*, other than an estimate of the volume or value of *resources* prepared in accordance with section 5.2, 5.9 or 5.18 or a comparative or equivalency measure under Part 2, 3, 4, 5, 6 or 7 of *Form 51-101F1*, the *reporting issuer* must include disclosure that
 - (a) identifies the standard and source of the *oil and gas metric*, if any,

- (b) provides a brief description of the method used to determine the *oil and gas metric*,
 - (c) provides an explanation of the meaning of the *oil and gas metric*, and
 - (d) cautions readers as to the reliability of the *oil and gas metric*.
- (2) If there is no identifiable standard for an *oil and gas metric*, the *reporting issuer* must also include disclosure that
- (a) provides a brief description of the parameters used in the calculation of the *oil and gas metric*, and
 - (b) states that the *oil and gas metric* does not have any standardized meaning and should not be used to make comparisons.

5.15 [Repealed.]

5.16 Restricted Disclosure: Summation of Resource Categories

- (1) A *reporting issuer* must not disclose a summation of an estimated quantity, or estimated value, of two or more of the following:
- (a) *reserves*;
 - (b) *contingent resources*;
 - (c) *prospective resources*;
 - (d) the unrecoverable portion of *discovered petroleum initially-in-place*;
 - (e) the unrecoverable portion of *undiscovered petroleum initially-in-place*;
 - (f) *discovered petroleum initially-in-place*; and
 - (g) *undiscovered petroleum initially-in-place*.
- (2) Despite subsection (1), a *reporting issuer* may disclose an estimate of *total petroleum initially-in-place*, *discovered petroleum initially-in-place* or *undiscovered petroleum initially-in-place* if the *reporting issuer* includes, proximate to that disclosure, an estimate of each of the following, as applicable:
- (a) *reserves*;
 - (b) *contingent resources*;
 - (c) *prospective resources*;
 - (d) the commercial portion of *discovered petroleum initially-in-place*;

- (e) the sub-commercial portion of *discovered petroleum initially-in-place*;
 - (f) the unrecoverable portion of *discovered petroleum initially-in-place*;
 - (g) the unrecoverable portion of *undiscovered petroleum initially-in-place*;
 - (h) *discovered petroleum initially-in-place*; and
 - (i) *undiscovered petroleum initially-in-place*.
- (3) A reporting issuer may disclose an estimate of *total petroleum initially-in-place*, *discovered petroleum initially-in-place* or *undiscovered petroleum initially-in-place* as the most specific category that it can assign to its resources if, proximate to its disclosure, the reporting issuer
- (a) explains why *total petroleum initially-in-place*, *discovered petroleum initially-in-place* or *undiscovered petroleum initially-in-place*, as the case may be, is the most specific assignable category; and
 - (b) includes
 - (i) in the case of disclosure of *discovered petroleum initially-in-place*, the cautionary statement required by clause 5.9(2)(d)(v)(A), or
 - (ii) in the case of disclosure of *total petroleum initially-in-place* or *undiscovered petroleum initially-in-place*, the cautionary statement required by clause 5.9(2)(d)(v)(B).

5.17 Disclosure of High-Case Estimates of Reserves and of Resources other than Reserves

- (1) If a reporting issuer discloses an estimate of *proved plus probable plus possible reserves*, the reporting issuer must also disclose the corresponding estimates of *proved* and *proved plus probable reserves* or of *proved* and *probable reserves*.
- (2) If a reporting issuer discloses a high-case estimate of *resources* other than *reserves*, the reporting issuer must also disclose the corresponding low and best-case estimates.

5.18 Supplementary Disclosure of Resources Using Evaluation Standards other than the COGE Handbook

- (1) A reporting issuer may supplement disclosure provided in accordance with section 5.2, 5.3 or 5.9 with an estimate of the volume or the value of

resources prepared in accordance with an alternative *resources* evaluation standard that

- (a) has a comprehensive framework for the evaluation of *resources*,
 - (b) defines *resources* using terminology and categories in a manner that is consistent with the terminology and categories of the *COGE Handbook*,
 - (c) has a scientific basis, and
 - (d) requires that estimates of volume and value of *resources* be based on reasonable assumptions.
- (2) If disclosure is made under subsection (1) and that disclosure is required under the laws of or by a *foreign jurisdiction*, the *reporting issuer* must, proximate to the disclosure,
- (a) disclose the *effective date* of the estimate,
 - (b) describe any significant differences, and the reasons those differences exist, between the estimate prepared in accordance with the alternative *resources* evaluation standard and the estimate prepared in accordance with the *COGE Handbook*, and
 - (c) include a reference to the location on the *SEDAR+* website of the estimate prepared
 - (i) in accordance with section 5.2, 5.3 or 5.9, as applicable, and
 - (ii) at the same effective date as the alternative disclosure.
- (3) If disclosure is made under subsection (1) and the disclosure is not required by a foreign jurisdiction, the *reporting issuer* must, proximate to the disclosure,
- (a) disclose the *effective date* of the estimate,
 - (b) provide a description of the alternative *resources* evaluation standard,
 - (c) describe any significant differences, and the reasons those differences exist, between the estimate prepared in accordance with the alternative *resources* evaluation standard and the estimate prepared in accordance with the *COGE Handbook*, and
 - (d) disclose the estimate prepared
 - (i) in accordance with section 5.2, 5.3 or 5.9, as applicable, and

- (ii) at the same *effective date* as the disclosure provided under subsection (1).
- (4) An estimate under subsection (1) must have been prepared or *audited by a qualified reserves evaluator or auditor*.

PART 6 MATERIAL CHANGE DISCLOSURE AND CEASING TO ENGAGE IN OIL AND GAS ACTIVITIES

6.1 Material Change from Information Filed under section 2

- (1) This Part applies in respect of a material change that, had it occurred on or before the *effective date* of information included in the statement most recently filed by a *reporting issuer* under item 1 of section 2.1, would have resulted in a significant change in the information contained in the statement.
- (2) In addition to any other requirement of *securities legislation* governing disclosure of a material change, disclosure of a material change referred to in subsection (1) must discuss the *reporting issuer's* reasonable expectation of how the material change has affected its *reserves data* or other information.

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

PART 7 OTHER INFORMATION

7.1 Information to be Furnished on Request

A *reporting issuer* must, on the request of the *regulator*, deliver additional information with respect to the content of a document filed under this *Instrument*.

PART 8 EXEMPTIONS

8.1 Authority to Grant Exemption

- (1) The *regulator* or the *securities regulatory authority* may grant an exemption from this *Instrument*, in whole or in part, subject to such conditions or restrictions as may be imposed in the exemption.
- (2) Despite subsection (1), in Ontario only the *regulator* may grant an exemption.
- (3) Except in Ontario, an exemption referred to in subsection (1) is granted under the statute referred to in Appendix B of National Instrument 14-101 *Definitions*, opposite the name of the local jurisdiction.

8.2 Exemption for Certain Exchangeable Security Issuers

- (1) An exchangeable security issuer, as defined in subsection 13.3(1) of *NI 51-102*, is exempt from this *Instrument* if all of the requirements of subsection 13.3(2) of *NI 51-102* are satisfied;
- (2) For the purposes of subsection (1), the reference to “continuous disclosure documents” in clause 13.3(2)(d)(ii)(A) of *NI 51-102* includes documents filed under this *Instrument*.

PART 9 INSTRUMENT IN FORCE

9.1 Coming Into Force - This *Instrument* comes into force on September 30, 2003.

9.2 *[repealed]*

FORM 51-101F1
STATEMENT OF RESERVES DATA
AND OTHER OIL AND GAS INFORMATION

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**FORM 51-101F1
STATEMENT OF RESERVES DATA
AND OTHER OIL AND GAS INFORMATION**

This is the form referred to in item 1 of section 2.1 of National Instrument 51-101 Standards of Disclosure for Oil and Gas Activities ("NI 51-101").

GENERAL INSTRUCTIONS

- (1) Terms for which a meaning is given in **NI 51-101** have the same meaning in this **Form 51-101F1**.
- (2) Unless otherwise specified in this **Form 51-101F1**, information under item 1 of section 2.1 of **NI 51-101** must be provided as at the last day of the **reporting issuer's** most recent financial year or for the financial year then ended.
- (3) It is not necessary to include the headings or numbering, or to follow the ordering of Items, in this **Form 51-101F1**. Information may be provided in tables.
- (4) To the extent that any Item or any component of an Item specified in this **Form 51-101F1** does not apply to a **reporting issuer** and its activities and operations, or is not **material**, no reference need be made to that Item or component. It is not necessary to state that such an Item or component is "not applicable" or "not material". Materiality is discussed in **NI 51-101** and Companion Policy 51-101CP.
- (5) This **Form 51-101F1** sets out minimum requirements. A **reporting issuer** may provide additional information not required in this **Form 51-101F1** provided that it is not misleading and not inconsistent with the requirements of **NI 51-101**, and provided that material information required to be disclosed is not omitted, *and that **contingent resource data** and **prospective resource data** only appears in an appendix to Form 51-101F1.*
- (6) A **reporting issuer** may satisfy the requirement of this **Form 51-101F1** for disclosure of information "by country" by instead providing information by **foreign geographic area** in respect of countries outside North America as may be appropriate for meaningful disclosure in the circumstances.
- (7) A **reporting issuer** disclosing financial information in a currency other than the Canadian dollar must, clearly and as frequently as is necessary to avoid confusing or misleading readers, disclose the currency in which the financial information is disclosed.
- (8) The **COGE Handbook** provides guidance about reporting using units of measurement. **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.

PART 1 DATE OF STATEMENT

Item 1.1 Relevant Dates

1. Date the statement.
2. Disclose the *effective date* of the information being provided.
3. Disclose the *preparation date* of the information being provided.

INSTRUCTIONS

- (1) For the purpose of Part 2 of **NI 51-101**, and consistent with General Instruction (2) of this **Form 51-101F1**, the **effective date** to be disclosed under section 2 of Item 1.1 is the last day of the **reporting issuer's** most recent financial year.
- (2) The same **effective date** applies to **reserves** of each category reported and to related **future net revenue**. References to a change in an item of information, such as changes in **production** or a change in **reserves**, mean changes in respect of that item during the year ended on the **effective date**.
- (3) The **preparation date**, in respect of written disclosure, means the most recent date to which information relating to the period ending on the **effective date** was considered in the preparation of the disclosure. The **preparation date** is a date subsequent to the **effective date** because it takes time after the end of the financial year to assemble the information for that completed year that is needed to prepare the required disclosure as at the end of the financial year.
- (4) Because of the interrelationship between certain of the **reporting issuer's reserves data** and other information referred to in this **Form 51-101F1** and certain of the information included in its financial statements, the **reporting issuer** should ensure that its financial statement auditor and its **qualified reserves evaluators or auditors** are kept apprised of relevant events and transactions, and should facilitate communication between them.
- (5) If the **reporting issuer** provides information as at a date more recent than the **effective date**, in addition to the information required as at the **effective date**, also disclose the date as at which that additional information is provided. The provision of such additional information does not relieve the **reporting issuer** of the obligation to provide information as at the **effective date**.

PART 2 DISCLOSURE OF RESERVES DATA

Item 2.1 Reserves Data (Forecast Prices and Costs)

1. Breakdown of Reserves (Forecast Case) – Disclose, by country and in the aggregate, *reserves, gross and net*, estimated using *forecast prices and costs*, for each *product type*, in the following categories:
 - (a) *proved developed producing reserves*;
 - (b) *proved developed non-producing reserves*;
 - (c) *proved undeveloped reserves*;
 - (d) *proved reserves (in total)*;
 - (e) *probable reserves (in total)*;
 - (f) *proved plus probable reserves (in total)*; and
 - (g) if the *reporting issuer* discloses an estimate of *possible reserves* in the statement:
 - (i) *possible reserves (in total)*; and
 - (ii) *proved plus probable plus possible reserves (in total)*.

2. Net Present Value of Future Net Revenue (Forecast Case) – Disclose, by country and in the aggregate, the net present value of *future net revenue* attributable to the *reserves* categories referred to in section 1 of this Item, estimated using *forecast prices and costs*, before and after deducting *future income tax expenses*, calculated without discount and using discount rates of 5 percent, 10 percent, 15 percent and 20 percent. Also disclose the same information on a unit value basis (e.g., \$/Mcf or \$/bbl using *net reserves*) using a discount rate of 10 percent and calculated before deducting *future income tax expenses*. This unit value disclosure requirement may be satisfied by including the unit value disclosure for each category of *proved reserves* and for *probable reserves* in the disclosure referred to in paragraph 3(c) of Item 2.1.

3. Additional Information Concerning Future Net Revenue (Forecast Case)
 - (a) This section 3 applies to *future net revenue* attributable to each of the following *reserves* categories estimated using *forecast prices and costs*:
 - (i) *proved reserves (in total)*;
 - (ii) *proved plus probable reserves (in total)*; and
 - (iii) if paragraph 1(g) of this Item applies, *proved plus probable plus possible reserves (in total)*.

- (b) Disclose, by country and in the aggregate, the following elements of *future net revenue* estimated using *forecast prices and costs* and calculated without discount:
- (i) revenue;
 - (ii) royalties;
 - (iii) *operating costs*;
 - (iv) *development costs*;
 - (v) abandonment and reclamation costs;
 - (vi) *future net revenue* before deducting *future income tax expenses*;
 - (vii) *future income tax expenses*; and
 - (viii) *future net revenue* after deducting *future income tax expenses*.
- (c) Disclose, by *product type*, in each case with associated *by-products*, and on a unit value basis for each *product type*, in each case with associated *by-products* (e.g., \$/Mcf or \$/bbl using *net reserves*), the net present value of *future net revenue* (before deducting *future income tax expenses*) estimated using *forecast prices and costs* and calculated using a discount rate of 10 percent.

INSTRUCTIONS

- (1) Disclose all of the **reserves** in respect of which the **reporting issuer** has a direct or indirect ownership, working or royalty interest. These concepts are explained in sections 5.5.4(a) "Ownership Considerations" and 7.5 "Interests" of volume 1 of the **COGE Handbook**, section 5.2 "Ownership Considerations" of volume 2 of the **COGE Handbook** and, with respect to an entitlement to share **production** under a **production** sharing agreement, section 4.0 "Fiscal Regimes" of the chapter entitled "Reserves Recognition For International Properties" of volume 3 of the **COGE Handbook**.
- (2) Do not include, in the **reserves data** a **product type** that is subject to purchase under a long-term supply, purchase or similar agreement. However, if the **reporting issuer** is a party to such an agreement with a government or governmental authority, and participates in the operation of the **properties** in which the **product type** is situated or otherwise serves as producer of the **reserves** (in contrast to being an independent purchaser, broker, dealer or importer), disclose separately the **reporting issuer's** interest in the **reserves** that are subject to such agreements at the **effective date** and the **net** quantity of the **product type** received by the **reporting issuer** under the agreement during the year ended on the **effective date**.

- (3) **Future net revenue** includes the portion attributable to the **reporting issuer's** interest under an agreement referred to in Instruction (2).
- (4) If the **reporting issuer's** disclosure of **reserves** would, to a reasonable person, be misleading, if stated without an explanation of the **reporting issuer's** ownership of or control over those **reserves**, explain the nature of the **reporting issuer's** ownership of or control over **reserves** disclosed in the statement filed or to be filed under item 1 of section 2.1 of **NI 51-101**.

Item 2.2 Supplementary Disclosure (Constant Prices and Costs)

The *reporting issuer* may supplement its disclosure of *reserves data* under Item 2.1 by also disclosing estimates of *reserves*, *resources* other than *reserves*, or both, together with estimates of associated *future net revenue*, determined using constant prices and costs rather than *forecast prices and costs* for each applicable product type.

INSTRUCTION

For this purpose,

- (a) a constant price is,
 - (i) if the **reporting issuer** is legally bound to supply the product at a particular price, that price; or
 - (ii) in every other case, the price that is the unweighted arithmetic average of the first-day-of-the-month price for that product for each of the 12 months preceding the effective date; and
- (b) the costs to be used are to be reasonably estimated on the basis of existing economic conditions without escalation or adjustment for inflation.

Item 2.3 [Repealed]

Item 2.4 [Repealed]

PART 3 PRICING ASSUMPTIONS

Item 3.1 Constant Prices Used in Supplementary Estimates

If supplementary disclosure under Item 2.2 is made, the *reporting issuer* must disclose, for each *product type*, the constant price used.

Item 3.2 Forecast Prices Used in Estimates

1. For each *product type*, disclose:
 - (a) the pricing assumptions used in estimating *reserves data* disclosed in response to Item 2.1:

- (i) for each of at least the following five financial years; and
 - (ii) generally, for subsequent periods; and
 - (b) the *reporting issuer's* weighted average historical prices for the most recent financial year.
2. The disclosure in response to section 1 must include the benchmark reference pricing schedules for the countries or regions in which the *reporting issuer* operates, and inflation and other forecast factors used.
 3. If the pricing assumptions specified in response to section 1 were provided by a *qualified reserves evaluator or auditor* who is *independent* of the *reporting issuer*, disclose that fact and identify the *qualified reserves evaluator or auditor*.

INSTRUCTIONS

- (1) Benchmark reference prices may be obtained from sources such as public product trading exchanges or prices posted by purchasers.
- (2) The defined term "**forecast prices and costs**" includes any 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. In effect, such contractually committed prices override benchmark reference prices for the purpose of estimating **reserves data**. To ensure that disclosure under this Part is not misleading, the disclosure should reflect such contractually committed prices.
- (3) [Repealed]

PART 4 RECONCILIATION OF CHANGES IN RESERVES

Item 4.1 Reserves Reconciliation

1. Provide the information specified in section 2 of this Item in respect of the following *reserves* categories:
 - (a) *gross proved reserves* (in total);
 - (b) *gross probable reserves* (in total); and
 - (c) *gross proved plus probable reserves* (in total).
2. Disclose changes between the *reserves* estimates made as at the *effective date* and the corresponding estimates ("prior-year estimates") made as at the last day of the preceding financial year of the *reporting issuer*:
 - (a) by country;
 - (b) for each of the following:

- (i) *bitumen;*
 - (ii) *coal bed methane;*
 - (iii) *conventional natural gas;*
 - (iv) *gas hydrates;*
 - (v) *heavy crude oil;*
 - (vi) *light crude oil and medium crude oil combined;*
 - (vii) *natural gas liquids;*
 - (viii) *shale gas;*
 - (ix) *synthetic crude oil;*
 - (x) *synthetic gas;*
 - (xi) *tight oil;*
- (c) separately identifying and explaining each of the following:
- (i) extensions and improved recovery;
 - (ii) technical revisions;
 - (iii) discoveries;
 - (iv) acquisitions;
 - (v) dispositions;
 - (vi) economic factors;
 - (vii) *production.*

INSTRUCTIONS

- (1) The reconciliation required under this Item 4.1 must be provided in respect of **reserves** estimated using **forecast prices and costs**, with the price and cost case indicated in the disclosure.
- (2) For the purpose of this Item 4.1, it is sufficient to provide the information in respect of the products specified in paragraph 2(b), excluding **solution gas, natural gas liquids** and other associated by-products.

- (3) The **COGE Handbook** provides guidance on the preparation of the reconciliation required under this Item 4.1.
- (4) **Reporting issuers** must not include infill drilling **reserves** in the category of technical revisions specified in clause 2(c)(ii). **Reserves** additions from infill drilling must be included in the category of extensions and improved recovery in clause 2(c)(i) (or, alternatively, in an additional separate category under paragraph 2(c) labelled "infill drilling").
- (5) *If the **reporting issuer** first became engaged in **oil and gas activities** only after the last day of its preceding financial year and no evaluation report in respect of its **reserves** as at that date is available to the **reporting issuer**, so that there is no opening data to be reconciled, the **reporting issuer** need not provide the reconciliation otherwise required under this Part but must disclose the reason for its absence.*

PART 5 ADDITIONAL INFORMATION RELATING TO RESERVES DATA

Item 5.1 Undeveloped Reserves

1. For *proved undeveloped reserves*:
 - (a) disclose for each *product type* the volumes of *proved undeveloped reserves* that were first attributed in each of the most recent three financial years; and
 - (b) discuss generally the basis on which the *reporting issuer* attributes *proved undeveloped reserves*, its plans (including timing) for developing the *proved undeveloped reserves* and, if applicable, its reasons for deferring the development of particular *proved undeveloped reserves* beyond two years.
2. For *probable undeveloped reserves*:
 - (a) disclose for each *product type* the volumes of *probable undeveloped reserves* that were first attributed in each of the most recent three financial years; and
 - (b) discuss generally the basis on which the *reporting issuer* attributes *probable undeveloped reserves*, its plans (including timing) for developing the *probable undeveloped reserves* and, if applicable, its reasons for deferring the development of particular *probable undeveloped reserves* beyond two years.

INSTRUCTIONS

- (1) *The phrase "first attributed" refers to the initial allocation of an undeveloped volume of **oil** or **gas reserves** by a **reporting issuer**. Only previously unassigned undeveloped volumes of **oil** or **gas reserves** may be included in the first attributed volumes for the applicable financial year. For example, if in 2011 a **reporting issuer** allocated by way of acquisition,*

discovery, extension and improved recovery 300 MMcf of **proved undeveloped conventional natural gas reserves** that would be the first attributed volume for 2011.

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

Item 5.2 Significant Factors or Uncertainties Affecting Reserves Data

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

INSTRUCTIONS

- (1) A **reporting issuer** must, under this Item, include a discussion of any significant **abandonment and reclamation costs**, unusually high expected **development costs** or **operating costs**, or contractual obligations to **produce** and sell a significant portion of **production** at prices substantially below those which could be realized but for those contractual obligations.
- (2) If the information required by this Item is presented in the **reporting issuer's** financial statements and notes thereto for the most recent financial year ended, the **reporting issuer** satisfies this Item by directing the reader to that presentation.

PART 6 OTHER OIL AND GAS INFORMATION

Item 6.1 Oil and Gas Properties and Wells

1. Identify and describe generally the *reporting issuer's* important *properties*, plants, facilities and installations:
- (a) identifying their location (province, territory or state if in Canada or the United States, and country otherwise);
 - (b) indicating whether they are located onshore or offshore;
 - (c) in respect of *properties* to which reserves have been attributed and which are capable of *producing* but which are not *producing*, disclosing how long they have been in that condition and discussing the general proximity of pipelines or other means of transportation; and
 - (d) describing any statutory or other mandatory relinquishments, surrenders, back-ins or changes in ownership.

2. State, separately for oil wells and gas wells, the number of the *reporting issuer's* producing wells and non-producing wells, expressed in terms of both gross wells and *net* wells, by location (province, territory or state if in Canada or the United States, and country otherwise).

Item 6.2 Properties With No Attributed Reserves

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

INSTRUCTION

If the **reporting issuer** holds interests in different formations under the same surface area pursuant to separate leases, disclose the method of calculating the **gross** and **net** area. A general description of the method of calculating the disclosed area will suffice.

Item 6.2.1 Significant Factors or Uncertainties Relevant to Properties with No Attributed Reserves

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

INSTRUCTIONS

- (1) A **reporting issuer** must, under this Item, include a discussion of any significant **abandonment and reclamation costs**, unusually high expected **development costs** or **operating costs**, or contractual obligations to **produce** and sell a significant portion of **production** at prices substantially below those which could be realized but for those contractual obligations.
- (2) If the information required by this Item is presented in the **reporting issuer's** financial statements and notes thereto for the most recent financial year ended, the **reporting issuer** satisfies this Item by directing the reader to that presentation.

Item 6.3 Forward Contracts

1. If the *reporting issuer* is bound by an agreement (including a transportation agreement), directly or through an aggregator, under which it may be precluded from fully realizing, or may be protected from the full effect of, future market prices for *oil* or *gas*, describe generally the agreement, discussing dates or time periods and summaries or ranges of volumes and contracted or reasonably estimated values.
2. A *reporting issuer* may satisfy the requirement in section 1 by including the information required by that section in its financial statements for the financial year ended on the *effective date*.
3. If the *reporting issuer's* transportation obligations or commitments for future physical deliveries of *oil* or *gas* exceed the *reporting issuer's* expected related future *production* from its *proved reserves*, estimated using *forecast prices and costs* and disclosed under Part 2, discuss such excess, giving information about the amount of the excess, dates or time periods, volumes and reasonably estimated value.

Item 6.4 [Repealed.]

Item 6.5 Tax Horizon

If the *reporting issuer* is not required to pay income taxes for its most recently completed financial year, discuss its estimate of when income taxes may become payable.

Item 6.6 Costs Incurred

Disclose by country for the most recent financial year ended each of the following:

- (a) *property acquisition costs*, separately for *proved properties* and *unproved properties*;
- (b) *exploration costs*;
- (c) *development costs*.

INSTRUCTION

If the costs specified in paragraphs (a), (b) and (c) are presented in the **reporting issuer's** financial statements and the notes to those statements for the most recent financial year ended, the **reporting issuer** satisfies this Item by directing the reader to that presentation.

Item 6.7 Exploration and Development Activities

1. Disclose, by country and separately for *exploratory wells* and *development wells*:
 - (a) the number of *gross wells* and *net wells* completed in the *reporting issuer's* most recent financial year; and

- (b) for each category of wells for which information is disclosed under paragraph (a), the number completed as *oil wells*, *gas wells*, *service wells* and *stratigraphic test wells* and the number that were dry holes.
2. Describe generally the *reporting issuer's* most important current and likely exploration and development activities, by country.

Item 6.8 *Production Estimates*

1. Disclose, by country, for each *product type*, the volume of *production* estimated for the first year reflected in the estimates of *gross proved reserves* and *gross probable reserves* disclosed under Item 2.1.
2. If one *field* accounts for 20 percent or more of the estimated *production* disclosed under section 1, identify that *field* and disclose the volume of *production* estimated for the *field* for that year.

Item 6.9 *Production History*

1. Disclose, for each quarter of its most recent financial year, by country for each *product type*:
- (a) the *reporting issuer's* share of average gross daily *production* volume; and
 - (b) as an average per unit of volume (for example, *\$/bbl* or *\$/Mcf*):
 - (i) the prices received;
 - (ii) royalties paid;
 - (iii) *production costs*; and
 - (iv) the resulting netback.
2. For each important *field*, and in total, disclose the *reporting issuer's* *production* volumes for the most recent financial year, for each *product type*.

INSTRUCTION

In providing information for each **product type** for the purpose of Item 6.9, it is not necessary to allocate among multiple **product types** attributable to a single well, **reservoir** or other **reserves** entity. It is sufficient to provide the information in respect of the principal **product type** attributable to the well, **reservoir** or other **reserves** entity. Resulting netbacks may be disclosed on the basis of units of equivalency between **oil** and **gas** (e.g. **BOE**) but if so that must be made clear and disclosure must comply with section 5.14 of **NI 51-101**.

PART 7 **OPTIONAL DISCLOSURE OF CONTINGENT RESOURCES DATA AND PROSPECTIVE RESOURCES DATA**

INSTRUCTIONS

- (1) A **reporting issuer** may disclose **contingent resources data** or **prospective resources data** in a statement of the **reserves data** and other information filed under item 1 of section 2.1 of **NI 51-101**, however, that data must only be disclosed as an appendix to that statement.
- (2) The following cautionary statement must be included in bold font and appear proximate to the **risked** net present value of **future net revenue** associated with **contingent resources** 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.
- (3) A **reporting issuer** may not rely on subsection 5.9(3) of **NI 51-101** for disclosure required to be included in this Part.
- (4) If a **reporting issuer's** disclosure of **contingent resources** or **prospective resources** would, to a reasonable person, be misleading if not accompanied by an explanation of the **reporting issuer's** ownership of or control over those **resources**, explain the nature of the **reporting issuer's** ownership of or control over all **contingent resources** and **prospective resources** disclosed in the statement filed or to be filed under item 1 of section 2.1 of **NI 51-101**.
- (5) A **reporting issuer's** disclosure respecting the value of **prospective resources** or **contingent resources** that are not in the **development pending project maturity sub-class** must be **risked** and must include an explanation of the factors considered respecting the **chance of**

commerciality, which includes both **chance of discovery** and **chance of development** in the case of **prospective resources** and **chance of development** in the case of **contingent resources**.

GUIDANCE

- (1) A **reporting issuer** is subject to sections 5.9 and 5.17 of **NI 51-101** when providing disclosure of **contingent resources data** or **prospective resources data** in this **Form**.
- (2) A **reporting issuer** providing disclosure of **contingent resources data** or **prospective resources data** in this **Form** must have an evaluation process for **contingent resources** or **prospective resources** that
 - (a) is at least as rigorous as would be the case for **reserves data**, and
 - (b) is recognized as well-established in the oil and gas industry.
- (3) An evaluation process described in subsection (2) is not needed if a reasonable **qualified evaluator or auditor** would conclude that it is not necessary in the circumstances.
- (4) All public disclosure by **reporting issuers** is subject to the general prohibition against misleading statements. The disclosure of development on-hold, development unclarified or development not viable **contingent resources**, or **prospective resources**, in the statement of **reserves data** and other oil and gas information might be misleading where there is a significant degree of uncertainty and risk associated with those estimates.

Item 7.1 Contingent Resources Data

1. If a *reporting issuer* discloses *contingent resources* in the statement filed under item 1 of section 2.1 of *NI 51-101*, the *reporting issuer* must disclose all of the following:
 - (a) the *risked 2C contingent resources volumes*, gross and net, for each *product type*, and classified in each applicable *project maturity sub-class*;
 - (b) if *contingent resources* in the *development pending project maturity sub-class* are disclosed, the *risked net present value of future net revenue* of the *2C contingent resources* in the *development pending project maturity sub-class*, 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.

2. Disclose the numeric value of the chance of development risk and describe the method of all of the following:
 - (a) quantifying the *chance of development* risk;
 - (b) estimating the *contingent resources* adjusted for *chance of development* risk and the associated *risked* net present value of *future net revenue*.

Item 7.2 Prospective Resources Data

1. If a *reporting issuer* discloses *prospective resources* in the statement filed under item 1 of section 2.1 of *NI 51-101*, disclose the best estimate *prospective resources*, *gross* and *net*, for each *product type*.
2. Disclose the numeric value of the *chance of discovery* and *chance of development* and describe the method of all of the following:
 - (a) quantifying the *chance of discovery* and *chance of development*;
 - (b) estimating the *prospective resources* adjusted for *chance of discovery* and *chance of development*.

Item 7.3 Forecast Prices Used in Estimates

1. For each *product type*, disclose the pricing assumptions used in estimating *contingent resources data* and *prospective resources data* disclosed in response to Item 7.1 for each of the five years following the most recently completed financial year.
2. The disclosure in response to section 1 must include the benchmark reference pricing schedules for the countries or regions in which the *reporting issuer* operates, and inflation and other forecast factors used.
3. The pricing assumptions included in section 1 must be the same as the pricing assumptions disclosed in response to Part 3 of this *Form 51-101F1*.

INSTRUCTIONS

- (1) Benchmark reference prices may be obtained from sources such as public product trading exchanges or prices posted by purchasers.
- (2) The defined term "**forecast prices and costs**" includes any 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. Such contractually committed prices must be used, instead of benchmark reference prices for the purpose of estimating **contingent resources data** and **prospective resources data**, unless a reasonable investor would find the use those contractually committed prices misleading.

Item 7.4 Supplemental Contingent Resources Data

The *reporting issuer* may supplement its disclosure of *contingent resources data* under Item 7.1 by also disclosing estimates of *contingent resources* together with estimates of associated *risked* net present value of *future net revenue*, determined using *constant prices and costs* rather than *forecast prices and costs* for each applicable product type.

FORM 51-101F2
REPORT ON [RESERVES DATA][,][CONTINGENT RESOURCES DATA][AND]
[PROSPECTIVE RESOURCES DATA] BY INDEPENDENT QUALIFIED RESERVES
EVALUATOR OR AUDITOR

This is the form referred to in item 2 of section 2.1 of National Instrument 51-101 Standards of Disclosure for Oil and Gas Activities ("NI 51-101").

1. Terms to which a meaning is ascribed in *NI 51-101* have the same meaning in this form.
2. The report on *reserves data*, *contingent resources data* or *prospective resources data*, if applicable, referred to in item 2 of section 2.1 of *NI 51-101*, to be executed by one or more *qualified reserves evaluators or auditors independent of the reporting issuer*, must in all *material* respects be in the following form:

Report on [Reserves Data][,][Contingent Resources Data][and][Prospective Resources Data] by Independent Qualified Reserves Evaluator or Auditor

To the board of directors of [name of reporting issuer] (the "Company"):

1. We have [audited][,][and][evaluated][or reviewed] the Company's [reserves data][,][contingent resources data][and][prospective resources data] as at [last day of the reporting issuer's most recently completed financial year]. **[If the Company has reserves, include the following sentence:** The reserves data are estimates of proved reserves and probable reserves and related future net revenue as at [last day of the reporting issuer's most recently completed financial year], estimated using forecast prices and costs.] **[If the Company has disclosed contingent resources data or prospective resources data, include the following sentence:** The [contingent resources data] [and] [prospective resources data] are risked estimates of volume of [contingent resources][and][prospective resources] and related risked net present value of future net revenue as at [last day of the reporting issuer's most recently completed financial year], estimated using forecast prices and costs.]
2. The [reserves data][,][contingent resources data][and][prospective resources data] are the responsibility of the Company's management. Our responsibility is to express an opinion on the [reserves data][,][contingent resources data][and][prospective resources data] based on our [audit][,][and][evaluation][and review].
 - (d) We carried out our [audit][,][and][evaluation][and review] in accordance with standards set out in the Canadian Oil and Gas Evaluation Handbook as amended from time to time (the "COGE Handbook") maintained by the Society of Petroleum Evaluation Engineers (Calgary Chapter).
3. Those standards require that we plan and perform an [audit][,][and][evaluation][and review] to obtain reasonable assurance as to whether the [reserves data][,][contingent resources data][and][prospective

resources data] are free of material misstatement. An [audit][,][and][evaluation] [and review] also includes assessing whether the [reserves data] [,][contingent resources data][and][prospective resources data] are in accordance with principles and definitions presented in the COGE Handbook.

4. **[If the Company has reserves, include this paragraph:]** The following table shows the net present value of future net revenue (before deduction of income taxes) attributed to proved plus probable reserves, estimated using forecast prices and costs and calculated using a discount rate of 10 percent, included in the reserves data of the Company [audited][,][and][evaluated][and reviewed] for the year ended [last day of the reporting issuer's most recently completed financial year], and identifies the respective portions thereof that we have [audited][,][and] [evaluated] [and reviewed] and reported on to the Company's [management/board of directors]:

Independent Qualified Reserves Evaluator or Auditor	Effective Date of [Audit/ Evaluation/ Review] Report	Location of Reserves (Country or Foreign Geographic Area)	Net Present Value of Future Net Revenue (before income taxes, 10% discount rate)			
			Audited	Evaluated	Reviewed	Total
Evaluator A	xxx xx, 20xx	Xxxx	\$xxx	\$xxx	\$xxx	\$xxx
Evaluator B	xxx xx, 20xx	Xxxx	\$xxx	\$xxx	\$xxx	\$xxx
Totals			\$xxx	\$xxx	\$xxx	\$xxx ¹

1. This amount must be the amount disclosed by the *reporting issuer* in its statement of *reserves data* filed under item 1 of section 2.1 of *NI 51-101*, as its *future net revenue* (before deducting *future income tax expenses*) attributed to *proved plus probable reserves*, estimated using *forecast prices and costs* and calculated using a discount rate of 10 percent (required by section 2 of Item 2.1 of *Form 51-101F1*).

5. **[If the Company has disclosed contingent resources data or prospective resources data, include this paragraph and the tables:]** The following tables set forth the risked volume and risked net present value of future net revenue of [contingent resources][and][prospective resources] (before deduction of income taxes) attributed to [contingent resources][and][prospective resources], estimated using forecast prices and costs and calculated using a discount rate of 10%, included in the Company's statement prepared in accordance with Form 51-101F1 and identifies the respective portions of the [contingent resources data][and][prospective resources data] that we have [audited][and][evaluated] and reported on to the Company's [management/board of directors]:

Classification	Independent Qualified Reserves Evaluator or Auditor	Effective Date of [Audit/ Evaluation] Report	Location of Resources Other than Reserves (Country or Foreign Geographic Area)	Risky Volume	Risky Net Present Value of Future Net Revenue (before income taxes, 10% discount rate)		
					Audited	Evaluated	Total
Development Pending Contingent Resources (2C)	Evaluator	xxx xx, 20xx	xxxx	xxx	\$xxx	\$xxx	\$xxx

Classification	Independent Qualified Reserves Evaluator or Auditor	Effective Date of [Audit/ Evaluation] Report	Location of Resources Other than Reserves (Country or Foreign Geographic Area)	Risky Volume	Risky Net Present Value of Future Net Revenue (before income taxes, 10% discount rate)		
					Audited	Evaluated	Total
Prospective Resources	Evaluator	xxx xx, 20xx	xxxx	xxx			
Contingent Resources	Evaluator	xxx xx, 20xx	xxxx	xxx			
[project maturity sub-classes other than Development Pending]							

6. In our opinion, the [reserves data][,][contingent resources data][and][prospective resources data] respectively [audited][and][evaluated] by us have, in all material respects, been determined and are in accordance with the COGE Handbook, consistently applied. We express no opinion on the [reserves data][,][contingent resources data][and] [prospective resources data] that we reviewed but did not audit or evaluate.
7. We have no responsibility to update our reports referred to in paragraph[s] [4][and][4.1] for events and circumstances occurring after the effective date of our reports.
8. Because the [reserves data][,][contingent resources data][and][prospective resources data] are based on judgements regarding future events, actual results will vary and the variations may be material.

Executed as to our report referred to above:

Evaluator A, City, Province or State / Country, Execution Date

[signed]

Evaluator B, City, Province or State / Country, Execution Date

[signed]

**FORM 51-101F3 REPORT OF MANAGEMENT AND DIRECTORS ON OIL AND GAS
DISCLOSURE**

This is the form referred to in item 3 of section 2.1 of National Instrument 51-101 Standards of Disclosure for Oil and Gas Activities ("NI 51-101").

1. Terms to which a meaning is ascribed in *NI 51-101* have the same meaning in this form.
2. The report referred to in item 3 of section 2.1 of *NI 51-101* must in all *material* respects be in the following form:

**Report of Management and Directors
on Reserves Data and Other Information**

Management of [name of reporting issuer] (the "Company") are responsible for the preparation and disclosure of information with respect to the Company's oil and gas activities in accordance with securities regulatory requirements. This information includes reserves data [and includes, if disclosed in the statement required by item 1 of section 2.1 of *NI 51-101*, other information such as contingent resources data or prospective resources data].

**[Alternative A: Reserves Data to Report or Contingent Resources Data or
Prospective Resources Data to Report]**

[An] independent [qualified reserves evaluator[s] or qualified reserves auditor[s]] [has/have] [audited][,][and][evaluated][and reviewed] the Company's [reserves data][,][contingent resources data][and][prospective resources data]. The report of the independent [qualified reserves evaluator[s] or qualified reserves auditor[s]] [is presented below / will be filed with securities regulatory authorities concurrently with this report].

The [Reserves Committee of the] board of directors of the Company has

- (a) reviewed the Company's procedures for providing information to the independent [qualified reserves evaluator[s] or qualified reserves auditor[s]];
- (b) met with the independent [qualified reserves evaluator[s] or qualified reserves auditor[s]] to determine whether any restrictions affected the ability of the independent [qualified reserves evaluator[s] or qualified reserves auditor[s]] to report without reservation [and, in the event of a proposal to change the independent [qualified reserves evaluator[s] or qualified reserves auditor[s]], to inquire whether there had been disputes between the previous independent [qualified reserves evaluator[s] or qualified reserves auditor[s] and management]]; and
- (c) reviewed the [reserves data][,][contingent resources

data][and][prospective resources data] with management and the independent [qualified reserves evaluator[s] or qualified reserves auditor[s]].

The [Reserves Committee of the] board of directors has reviewed the Company's procedures for assembling and reporting other information associated with oil and gas activities and has reviewed that information with management. The board of directors has [, on the recommendation of the Reserves Committee,] approved

- (a) the content and filing with securities regulatory authorities of Form 51-101F1 containing [reserves data][,][contingent resources data][and][prospective resources data] and other oil and gas information;
- (b) the filing of Form 51-101F2 which is the report of the independent [qualified reserves evaluator[s] or qualified reserves auditor[s]] on the reserves data, contingent resources data, or prospective resources data; and
- (c) the content and filing of this report.

Because the [reserves data][,][contingent resources data][and][prospective resources data] are based on judgements regarding future events, actual results will vary and the variations may be material.

[Alternative B: No Reserves to Report and No Resources Other than Reserves to Report]

The [Reserves Committee of the] board of directors of the Company has reviewed the oil and gas activities of the Company and has determined that the Company had no reserves as of [last day of the reporting issuer's most recently completed financial year].

An independent qualified reserves evaluator or qualified reserves auditor has not been retained to evaluate the Company's reserves data. No report of an independent qualified reserves evaluator or qualified reserves auditor will be filed with securities regulatory authorities with respect to the financial year ended on [last day of the reporting issuer's most recently completed financial year].

The [Reserves Committee of the] board of directors has reviewed the Company's procedures for assembling and reporting other information associated with oil and gas activities and has reviewed that information with management. The board of directors has [, on the recommendation of the Reserves Committee,] approved

- (a) the content and filing with securities regulatory authorities of Form 51-101F1 containing information detailing the Company's oil and gas activities; and

(b) the content and filing of this report.

[signature, name and title of chief executive officer]

[signature, name and title of an officer other than the chief executive officer]

[signature, name of a director]

[signature, name of a director]

[Date]

**FORM 51-101F4
NOTICE OF
FILING OF 51-101F1 INFORMATION**

This is the form referred to in section 2.3 of National Instrument 51-101 *Standards of Disclosure for Oil and Gas Activities* (“NI 51-101”).

On [date of SEDAR+ Filing], [name of reporting issuer] filed its reports under section 2.1 of NI 51-101, which can be found [describe where a copy of the filed information can be found for viewing by electronic means (for example, in the company's *annual information form* under the company's profile on SEDAR+ at www.sedarplus.com)].

**FORM 51-101F5
NOTICE OF CEASING TO ENGAGE IN OIL AND GAS ACTIVITIES**

This is the form referred to in section 6.2 of National Instrument 51-101 *Standards of Disclosure for Oil and Gas Activities* ("NI 51-101").

1. Terms to which a meaning is ascribed in NI 51-101 have the same meaning in this form.
2. The notice referred to in section 6.2 of NI 51-101 must in all *material* respects be in the following form:

**Notice of
Ceasing to Engage in Oil and Gas Activities**

Management and the board of directors of [name of reporting issuer] (the "Company") have determined that as of [date] the Company is no longer engaged, directly or indirectly, in oil and gas activities.

[signature, name and title of chief executive officer]

[signature, name and title of an officer other than the chief executive officer]

[signature, name of a director]

[signature, name of a director]

[Date]