

SAMOG
THE SOUTH AFRICAN CODE FOR THE
REPORTING OF OIL AND GAS RESOURCES
(THE SAMOG CODE)

2014 EDITION

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Prepared by:

The South African Oil and Gas Committee (SAMOG) Working Group

www.samcode.co.za

REPORTING OF OIL AND GAS RESOURCES

An Oil and Gas Working Group (the Working group) has been deliberating upon the position that the SAMREC/SAMVAL Committee (SSC) should take with respect to providing reporting rules and guidelines to Qualified Reserves Evaluators (QRE) preparing public reports in South Africa. At the outset, it should be noted that there are international efforts to standardise the definitions of petroleum reserves and resources. In 2002, the Calgary Chapter of the Society of Petroleum Evaluation Engineers (SPEE-Calgary) working with industry and regulators developed the Canadian Oil and Gas Evaluation Handbook (COGEH) that was adopted by the Canadian Securities Administrators (CSA) as the technical reference for the petroleum reserves and resources disclosure rules (NI 51-101). Note that in Canada, the maintenance of NI 51-101 has been delegated to the Alberta Securities Commission (ASC).

In 2007, the Society of Petroleum Engineer, the American Association of Petroleum Geologists (AAPG), the Society of Petroleum Evaluation Engineers (SPEE) and the World Petroleum Council (WPC) jointly developed a classification system known as the Petroleum Resources Management System (PRMS). COGEH was updated to align with PRMS in 2007. While PRMS and COGEH guidelines are very closely aligned as both are built on the prior SPE guidance, there are some minor differences. There is an ongoing project to merge COGEH and PRMS. One or both are referenced explicitly or implicitly as the technical guidelines in oil and gas disclosure rules recently developed in the US, Europe, Hong Kong and Australia.

Under these circumstances, the SSC has not prepared a separate set of rules and guidelines but has rather provided the position status of the SSC with respect to its recognition of the international standards for best practice definitions and guidelines for preparing a report by a *reporting entity* which is compliant with this code as well as the public reporting standard that would enable that information to be presented into the public domain in manner that would be considered commensurate with the best securities exchange rules and practices.

The SAMOG Working Group has developed a working relationship with the Alberta Securities Commission (ASC) in order to assist with the practical application and maintenance of this SAMOG Code which is primarily based upon NI 51-101. It must be noted that COGEH is closely aligned with PRMS but it is recommended that oil and gas QRE reporting under this code should ensure familiarity with both PRMS and COGEH to the extent that reference hereinafter to either of these reporting standards will mean that both will have been taken into account by the QRE.

The SSC will maintain surveillance of the potential changes to PRMS and NI51-101 as they may influence the interpretation and application of the SAMOG Code.

Part 1 APPLICATION

The definitions in this code relate to the interpretation and application of this code. Throughout this code, unless otherwise stated or the content requires otherwise, an expression which denotes any gender includes other genders and the following terms have the meanings set out below.

"oil and gas activities"

(i) include:

- (A) The search for product types in their natural locations;
 - (B) The acquisition of property rights or properties for the purpose of exploring for or removing product types from their natural locations on those properties;
 - (C) the activities 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; and
 - (D) The extraction of synthetic crude oil and synthetic gas
- (ii) But do not include any of the following:
- (A) Activities that occur after the *first point of sale*;
 - (B) activities relating to the extraction of natural resources other than product types and their byproducts; or
 - (C) The extraction of hydrocarbons as a consequence of the extraction of geothermal steam.

Product type means any of the following:

- (i) in respect of liquid hydrocarbons, any of the following:
 - (A) a combination of light crude oil and medium crude oil;
 - (B) heavy crude oil;
 - (C) bitumen;
 - (D) natural gas liquids;
 - (E) synthetic crude oil;
- (ii) in respect of gaseous hydrocarbons, any of the following:
 - (A) conventional natural gas;
 - (B) coal bed methane;
 - (C) gas hydrates;
 - (D) shale gas;
 - (E) Synthetic gas.

Materiality

This Code applies only in respect of information that is material in respect of a reporting entity. 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 entity

Part 2 COMPETENCIES AND RESPONSIBILITY

Reserves and Resources evaluation that will be disclosed to the public must be prepared by a Qualified Reserves Evaluator (QRE). To qualify as a QRE an individual needs to prove the following:

Registration as a professional in good standing, with the SPEE,) and/or a Certified Petroleum Geologist with the American Association of Petroleum Geologists (AAPG) and licensed to practice in engineering, geology, geophysics or other relevant disciplines;

- have a minimum of ten years' practical experience in petroleum engineering, geology or geophysics, with at least three recent years of such experience in the evaluation of Reserves and Resources; and
- Must be current and competent in the methods and practices of Reserves and Resource Evaluation.

Public Reports are all reports prepared for the purpose of informing investors or potential investors and their advisers and include but are not limited to: company annual reports, quarterly reports and other reports included in JSE circulars, or as required by the Companies Act. The Code also applies to the following reports if they have been prepared for the purposes described in environmental statements; information memoranda; expert reports; technical papers; website postings; and public presentations, and the recommended reporting as per NI51-101 .

Part 3 REPORTING TERMINOLOGY

All reports should be prepared having taken into account the principles incorporated in PRMS or COGEC referenced by the SAMREC Code website, as amended from time to time.

For the purpose of reporting in South Africa, whilst NI 51-101 is referenced here, preparers are specifically required to adhere to Part 5 Requirements Applicable to All Disclosure.

Figure 1 represents the globally accepted standard for oil and gas resource and reserve classifications.

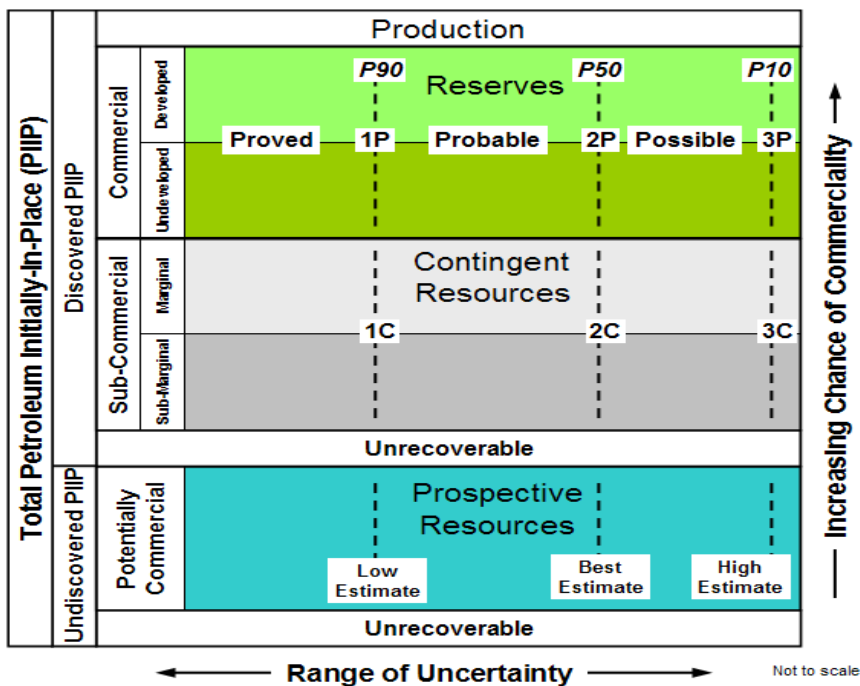


Figure 1

Part 4 SPECIFIC ITEMS REQUIRED FOR THE SAMOG CODE

The SAMOG Code requires that preparers of oil and gas reports comply with this code.

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 entity*

- (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 entity 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 - If a *reporting entity* makes disclosure of reserves or other information of a type that is specified in *Form 1*, the reporting entity 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 by a *QRE*;
 - (iii) have been prepared in accordance with *PRMS* or *COGEH*;
 - (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 entity* 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 *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 1*;
- (d) A statement of the reserves data and other information stated in *Form 1* should be disclosed as at the last day of the reporting entity’s most recent financial year or a later date if more than six months have elapsed since the most recent financial year

5.3 Reserves and Resources Classification –

(1) Disclosure of reserves or resources must apply the reserves and resources terminology and categories set out in *PRMS/COGEH* and must relate to the most specific category of *reserves* or *resources* in which the *reserves* or *resources* can be classified.

(2) The Author of the report prepared under this code must indicate whether it was prepared under *COGEH* or *PRMS*.

5.4 Oil and Gas Resources and Sales

- (1) Disclosure of resources or of sales of product types or associated byproducts must be made with respect to the first point of sale'
- (2) Despite subsection (1), a reporting entity may disclose resources or sales of product types or associated byproducts with respect to alternate reference point if, to a reasonable person, product types or associated byproducts would be marketable at the alternate reference point
- (3) If a reporting entity discloses resources or sales of product type or associate byproducts with respect to an alternate reference point, the reporting entity must
 - (i) State that the disclosure is made with respect to an alternate reference point,
 - (ii) Disclose the location of the alternate reference point, and
 - (iii) Explain why disclosure is not being made with respect to the first point of sale.

5.5 Repealed

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 Consent of *Qualified Reserves Evaluator*

A statement must be included that the QRE has ensured that the information disclosed in the report is in compliance with the code and that the report may be published in its current form and context by the issuer.

5.8 Disclosure of Less Than All Reserves - If a reporting entity that has more than one property makes written disclosure of any reserves attributable to a particular property

- (a) 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
- (b) 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 entity* in the same country (or, if appropriate and not misleading, in the same *foreign geographic area*).

5.9 Disclosure of *Resources*

- (1) If a *reporting entity* discloses *anticipated results* from *resources* which are not currently classified as *reserves*, the *reporting entity* must also disclose in writing, in the same document:-
 - a) the *reporting entity's* equity holding in the resources;
 - b) the location of the *resources*;
 - c) the *product types* reasonably expected;
 - d) a description of the project including
 - (a) each significant event in the project and the specific time period in which each event is expected to occur
 - (b) the recovery technology; and
 - (c) whether the project is a conceptual or predevelopment study:

- e) the risks and the level of uncertainty associated with recovery of the *Resources*; and
 - f) 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 in which the reporting entity 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 by a *qualified reserves evaluator*;
 - (b) relate to the most specific category of *resources* in which the *resources* can be classified, as set out in PRMS and *COGEH* and must identify what portion of the estimate is attributable to each category; and
 - (c) 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;
 - (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 no certainty 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.”

5.10 Analogous Information

- (1) Sections 5.2, 5.3 and 5.9 do not apply to the disclosure of analogous information provided that the reporting entity 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 entity* is unable to confirm that the *analogous information* was prepared by a *qualified reserves evaluator* 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 entity's oil and gas activities*.
- (2) For greater certainty, if a *reporting entity* 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 and 5.9 apply to the disclosure of the information.

5.11 Net Asset Value and Net Asset Value per Share - Written disclosure of net asset value or net asset value per share must include a description of the methods used to value assets and liabilities and the number of shares used in the calculation.

5.12 Reserve Replacement - Written disclosure concerning *reserve* replacement must include an explanation of the method of calculation applied.

5.13 Netbacks - Written disclosure of a net back must

- (a) **Repealed**
- (b) Reflect netbacks calculated by subtracting royalties and operating costs from revenues; and
- (c) State the method of calculation.

5.14 Disclosure using Oil and Gas Metrics

- (1) If a reporting entity discloses an oil and gas metric, other than an estimate of volume or value of resources prepared in accordance with section 5.2 or 5.9 or a comparative or equivalency measure under Part 2,3,4,5 or 6 or Form 1, the reporting entity must include disclosure that
 - (a) Identifies the standard and source of the oil and gas metric;
 - (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;
 - (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 entity 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 standardised meaning and should not be used to make comparisons.

5.15 Repealed

5.16 Restricted Disclosure: Summation of *Resource* Categories

(1) A *reporting entity* 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 entity* 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 entity* 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) (c) (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) (c) (v) (B).

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

(1) If a *reporting entity* 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 entity* discloses a high case estimate of *resources* other than *reserves*, the *reporting issuer* must also disclose the corresponding low and best case estimates.

Part 6 DEFINITIONS

Throughout this code, unless otherwise stated or the content requires otherwise, an expression which denotes any gender includes other genders and the following terms will have the meanings set out below. Definitions in this section is also applicable to Form 1

Abandonment costs

Abandonment costs means all costs associated with

- (i) rendering all intervals of a well incapable of flow into the wellbore or between intervals
- (ii) removing all wellhead equipment; and
- (iii) the physical removal of surface facilities, and the decommissioning of any facilities, in the vicinity of the well, required for the transport, treatment and metering of a product type.

Alternate reference point

Alternate reference point means a location at which quantities and values of a product type are measured before the first point of sale

Analogous Information

Information about an area outside the area in which the reporting entity has an interest or intends to acquire an interest, which is referenced by the reporting entity for the purpose, in the opinion of a reasonable person, of drawing a comparison or conclusion to an area in which the reporting issuer has an interest or intends to acquire an interest and may include:

- (i) Historic information concerning reserves;
- (ii) estimates of the volume or value of reserves;
- (iii) Historic information concerning resources;
- (iv) estimates of the volume or value of resources;

- (v) Historic production amounts;
- (vi) Production estimates; or
- (vii) Information concerning a field, well, basin or reservoir

Anticipated Results

Information that may, in the opinion of a reasonable person, indicate the potential value or quantities of resources in respect of the reporting entity's resources or a portion of its resources which may include:

- (i) An estimate of volume;
- (ii) An estimate of value;
- (iii) Areal extent;
- (iv) Anticipated pay thickness;
- (v) Flow rates; or
- (vi) Hydrocarbon content;

Bitumen

Bitumen means the naturally occurring viscous mixture, consisting mainly of pentanes and heavier hydrocarbons, with a viscosity greater than 10 000 mPa's (cP) measured at the mixture's original temperature in the reservoir and at atmospheric pressure on a gas-free basis

BOE (Barrels of Oil Equivalent)

Converting gas volumes to the oil equivalent is customarily done on the basis of the nominal heating content or calorific value of the fuel. There are a number of methodologies in common use. Before aggregating, the gas volumes first must be converted to the same temperature and pressure. Common industry gas conversion factors usually range between 1 barrel of oil equivalent (BOE) = 5,600 standard cubic feet (scf) of gas to 1 BOE = 6,000 scf. (Many operators use 1 BOE = 5,620 scf derived from the metric unit equivalent 1 m³ crude oil = 1,000 m³ natural gas). [PRMS Glossary]

Byproduct

Byproduct means a hydrocarbon or non-hydrocarbon that is recovered as a consequence of producing a product type.

Coal bed Methane

Coal bed methane means natural gas, primarily made up of methane, contained in coal deposits

Contingent resources data

Contingent resources data means an estimate of contingent resources and related future net revenue, estimated using forecast prices and costs.

Conventional natural gas

Conventional natural gas means natural gas contained in and produced from pore space in an accumulation for which the primary trapping mechanism is related to hydrodynamic forces and localised or depositional geological features.

Effective Date

- 1) the cut-off date for all geological, engineering, and financial data after which no new information can be included in the evaluation; and
- 2) It is the date to which all future net revenue or other cash flow forecasts are discounted to determine net present values.

Entity

An Entity is a corporation, joint venture, partnership, trust, individual, principality, agency, or other person engaged directly or indirectly in (i) the exploration for, or production of, oil and gas; (ii) the acquisition of properties or interests therein for the purpose of conducting such exploration or production; or (iii) the ownership of properties or interests therein with respect to which such exploration or production is being, or will be, conducted. [SPE audit standards]

First point of Sale

First point of sale means the first point after initial production at which there is a transfer of ownership of a product type.

Future Net Revenue

Future net revenue means a forecast of revenue, estimating using forecast prices and costs or constant prices and costs, arising from the anticipated development and production of resources and reserves net of the associated royalties, operating costs, development costs, abandonment costs and reclamation costs. Corporate general and administrative expenses and financing costs are not deducted. Net present values of future net revenue must be calculated using a discount rate and without discount rate.

Gas hydrates

Gas hydrates means naturally occurring crystalline substances composed of water and gas, in an ice lattice structure.

Heavy crude oil

Heavy crude oil means crude oil with a density greater than 10 degrees API gravity and less than or equal to 22.3 degrees API gravity

Hydrocarbon

Hydrocarbon means a compound consisting of hydrogen and carbon, which, when naturally occurring, may also contains other elements such as sulphur.

Light crude oil

Light crude oil means crude oil with a density greater than 31.1 degrees APR gravity

McfGE's (Thousand cubic feet of Gas Equivalent)

Converting oil volumes to the gas equivalent is customarily done on the basis of the nominal heating content or calorific value of the fuel. Common industry conversion factors range from barrel crude oil = 6 McfGE to 5.6 McfGE. (Other operators use the metric conversion ratio of 1 m³ crude oil = 1 McfGE)
[From above]

Medium crude oil

Medium crude oil means crude oil with a density that is greater than 22.3 degrees API gravity and less than or equal to 31.1. Degrees API gravity

Natural gas

Natural gas means a naturally occurring mixture of hydrocarbon gases and non-hydrocarbon gases.

Natural gas liquids

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, condensate and may contain non-hydrocarbons.

Net back

The price of oil or gas at any interim point in the production and processing flow calculated based on the price of the derived sales products at a defined reference point.

Oil and Gas metric

Oil and gas metric means a numerical measure of a reporting entity's oil and gas activities

.

Prospective Resources data

Prospective resources means an estimate of prospective resources and related future net revenue, estimated using forecast prices and costs.

Reclamation costs

Reclamation costs means all costs, other than abandonment costs, associated with restoring land as close as possible to its original state or to a standard prescribed or imposed by a government or regulatory authority.

Reporting Entity

The entity submitting the Resources and Reserves Report. (see above)

(could also be Reporting Issuer):

- (a) A "reporting issuer" as defined in securities legislation; or
- (b) in a jurisdiction in which the term is not defined in securities legislation, an issuer of securities that is required to file financial statements with the securities regulatory authority.

Reserve Data

Estimates of proved reserves and probable reserves and related future net revenue estimated using forecast prices and costs. [NI 51-101]

Reserves Information

Reserves Information consists of various estimates pertaining to the extent and value of petroleum properties. Reserves Information will include:

- (i) Estimates of petroleum reserves and may, but will not necessarily, include estimates of (ii) the future production rates from such reserves, (iii) the future net revenue from such reserves, and (iv) the present

value of such future net revenue. All such Reserves Information should be estimated and classified as appropriate to stated reserves definitions. [SPE Audit Standards]

Shale Gas

Shale gas means natural gas

- (A) contained in dense organic-rich rocks, including inherently low permeability shales, siltstones and carbonates in which the natural gas is primarily adsorbed on the kerogen or clay minerals; and
- (B) That requires the use of fracturing techniques to achieve economic production rates.

Synthetic gas

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 type; and
- (B) Comprised of not less than 10% by volume of methane.

Synthetic crude oil

Synthetic crude oil means a mixture of liquid hydrocarbons derived by upgrading bitumen, kerogen from oil shales, coal or from gas to liquid conversion and may contain sulphur or other non-hydrocarbon compounds

Unproved property

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

Part 7 FORM 1

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This is the form referred to in Part 1 and Part 5.2 of the SAMOG Code *Standards of Disclosure for Oil and Gas Activities*.

GENERAL INSTRUCTIONS

- (1) *Terms for which a meaning is given in **the SAMOG Code** have the same meaning in this **Form 1**.*
- (2) *It is not necessary to include the headings or numbering, or to follow the ordering of Items, in this **Form 1**. Information may be provided in tables.*

- (3) *To the extent that any Item or any component of an Item specified in this **Form 1** does not apply to a **reporting entity** 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".*
- (4) *This **Form 1** sets out minimum requirements. A **reporting entity** may provide additional information not required in this **Form 1** provided that it is not misleading and not inconsistent with the requirements of **the SAMOG Code**, and provided that material information required to be disclosed is not omitted.*
- (5) *A **reporting entity** may satisfy the requirement of this **Form 1** 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.*

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) *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 twelve months ended on the **effective date**.*
- (2) *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 effective date to assemble the information for that completed year that is needed to prepare the required disclosure as at the end of the effective date.*
- (3) *Because of the interrelationship between certain of the **reporting entity's reserves data** and other information referred to in this **Form 1** and certain of the information included in its financial statements, the **reporting entity** should ensure that its financial auditor and its **qualified reserves evaluators** are kept apprised of relevant events and transactions, and should facilitate communication between them.*
- (4) *If the **reporting entity** 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 entity** 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 entity* 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*.

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 costs 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 *production type* in each case with associated byproduct, and on a unit value basis for each product type, in each case with associated byproducts (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.

4. Contingent Resources or Prospective Resources

If the reporting entity discloses contingent resources or Prospective resources in the Qualified Reserve Evaluator Report, disclose separately from the disclosure required by items 1, 2 and 3 of section 2.1 of Form 1

- (a) The contingent resources or prospective resources, as applicable, gross and net, estimated using forecast prices and costs, for each product type, in each of the following categories:
- (i) Contingent resources (1C)
 - (ii) Contingent resources (2C)
 - (iii) Contingent resources (3C)
 - (iv) Prospective resources (low estimate)
 - (v) Prospective resources (best estimate)
 - (vi) Prospective resources (high estimates); and
- (b) The net present value of future net revenue attributable to each category of contingent resources referred to in paragraph (a) of this item, estimated using forecast prices and costs, before deducting future income tax expenses, calculated using discount rates of 0 percent, 5 percent, 10 percent, 15 percent and 20 percent.

Instructions

- (1) *Disclose all of the reserves over which the reporting issuer has a direct or indirect ownership, working or royalty interest.*
- (2) *Do not include, in the reserves data, contingent resources data or prospective resources data, a product type that is subject to purchase under a long-term supply, purchase or similar agreement. However, if the reporting entity 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 resources (in contrast to being an independent purchaser, broker, dealer or importer) disclose separately the reporting entity's interest in the resources that subject to such agreements at the effective date and the net quantity of the product type received by the reporting entity under the agreement during the 12 months ended on the effective date.*

- (3) *Future net revenue includes the portion attributable to the reporting entity's interest under an agreement referred to in Instruction 2*
- (4) *A reporting entity may disclose resources separately from the disclosure required under item 2.1 of this Form. The separate disclosure must include an explanation of the purpose for the separation and of whether the separately disclosed resources were also included in the disclosure required under item 2.1 of this Form.*
- (5) *If the reporting entity's disclosure of resources would, to a reasonable person, be misleading, if stated without an explanation of the reporting entity's ownership of or control over those resources, explain the nature of the reporting entity's ownership of no control over resources disclosed in the Qualified Reserve Evaluator report*
- (6) *If a reporting entity voluntarily discloses contingent resources or prospective resources and the IC or loss estimate, as applicable, has a negative net present value at any of the discount rates referred to in paragraph 4 (b), the reporting entity must disclose the negative net present value.*

Item 2.2 Repealed

Item 2.3 Repealed

Item 2.4 Future Net Revenue Disclosure Varies with Accounting

1. Consolidated Financial Disclosure – If the *reporting entity* files consolidated financial statements, and if a significant portion of the *reporting entity's* economic interest in *future net revenue* is attributable to a consolidated subsidiary in which there is a significant minority interest, disclose that fact and the approximate portion of the economic interest in *future net revenue* attributable to the minority interest.
2. Equity Accounting – If the *reporting entity* files financial statements in which investments are accounted for by the equity method, do not include investees' *future net revenue* in disclosed *future net revenue* of the *reporting entity*, but disclose the *reporting entity's* share of investees' *future net revenue* separately, by country and in the aggregate.

INSTRUCTIONS

- (1) *Do not include, in **reserves, oil or gas** that is subject to purchase under a long-term supply, purchase or similar agreement. However, if the **reporting entity** is a party to such an agreement with a government or governmental authority, and participates in the operation of the **properties** in which the **oil or gas** 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 entity's** interest in the **reserves** that are subject to such agreements at the **effective date** and the **net** quantity of **oil or gas** received by the **reporting entity** under the agreement during the year ended on the **effective date**.*
- (2) ***Future net revenue** includes the portion attributable to the **reporting entity's** interest under an agreement referred to in Instruction (1).*
- (3) ***Constant prices and costs** are prices and costs used in an estimate that are:*
 - (a) *the **reporting entity's** prices and costs as at the **effective date** of the estimation, held constant throughout the estimated lives of the **properties** to which the estimate applies;*

- (b) *if, and only to the extent that, there are fixed or presently determinable future prices or costs to which the **reporting entity** 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 paragraph (a).*

*For the purpose of paragraph (a), the **reporting entity's** prices will be the posted price for oil and the spot price for gas, after historical adjustments for transportation, gravity and other factors.*

PART 3 PRICING ASSUMPTIONS

Item 3.1 Repealed

Item 3.2 Forecast Prices Used in Estimates

1. For each *product type*, disclose:
 - (a) the pricing assumptions used in estimating *reserves data, contingent resources or prospective resource 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 entity'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 entity* 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* who is *independent* of the *reporting entity*, disclose that fact and identify the *qualified reserves evaluator*.

INSTRUCTIONS

- (1) *Benchmark reference prices may be obtained from sources such as public product trading exchanges or prices posted by purchasers.*
- (2) *The term "**constant prices and costs**" and the defined term "**forecast prices and costs**" include any fixed or presently determinable future prices or costs to which the **reporting entity** 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, contingent resources data or prospective resource data**. To ensure that disclosure under this Part is not misleading, the disclosure should reflect such contractually committed prices.*

- (3) *Under subsection 5.7 of **the SAMOG Code**, the **reporting entity** must obtain the written consent of the **qualified reserves evaluator** to disclose his or her identity in response to section 3 of this Item.*

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) *proved reserves* (in total);
 - (b) *probable reserves* (in total); and
 - (c) *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 year of the *reporting entity*:
 - (a) by country;
 - (b) for each of the following:
 - (i) a combination of light crude oil and medium crude oil
 - (ii) Heavy crude oil;
 - (iii) Bitumen;
 - (iv) Natural gas liquids;
 - (v) Synthetic crude oil;
 - (vi) Conventional natural gas;
 - (vii) Coal bed methane;
 - (viii) Gas hydrates;
 - (ix) Shale gas;
 - (x) Synthetic gas;

 - (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; and
- (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 byproducts.*
- (3) *The **PRMS and COGE Handbook** provides guidance on the preparation of the reconciliation required under this Item 4.1.*
- (4) ***Reporting entities** 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”).*

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 year's end;; and
 - (b) discuss generally the basis on which the *reporting entity* 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* during the following 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 end ; and
 - (b) discuss generally the basis on which the *reporting entity* 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* during the following 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 entity. Only previously unassigned undeveloped volumes of oil or gas may be included in the first attributed volumes for the applicable reporting period/ For example, in 2011 a reporting entity allocated by way of an acquisition, discovery, extension and improved recovery 300 Mcf of proved undeveloped conventional natural gas reserves, that would be the first attributed volume for 2011
- (2) The discussion for a reporting entity’s plan for developing undeveloped reserves or the reporting entity’s reasons for deferring the development of undeveloped reserves must enable a reasonable investor to assess the efforts made by the reporting entity to convert undeveloped reserves to developed reserves.

Item 5.2 Significant Factors or Uncertainties affecting Reserves Data

1. Identify and discuss important economic factors or significant uncertainties that affect particular components of the *reserves data*.
2. .

INSTRUCTION

- (1) A reporting entity must, under this Item, include a discussion of any significant abandonment costs 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 realised but for those contractual obligations.

If the information required by this Item is presented in the reporting entity’s financial statements and notes thereto for the most recent financial year ended, the reporting entity satisfies this Item by directing the reader to that presentation.

Item 5.3 Future Development Costs

1. (a) Provide the information specified in paragraph 1(b) in respect of *development costs* deducted in the estimation of *future net revenue* attributable to each of the following *reserves* categories:
 - (i) *proved reserves* (in total) estimated using *forecast prices and costs*; and
 - (ii) *proved plus probable reserves* (in total) estimated using *forecast prices and costs*.
- (b) Disclose, by country, the amount of *development costs* estimated:
 - (i) in total, calculated using no discount; and
 - (ii) by year for each of the first five years estimated.

2. Discuss the *reporting entity's* expectations as to:
 - (a) the sources (including internally-generated cash flow, debt or equity financing, farm-outs or similar arrangements) and costs of funding for estimated future *development costs*; and

- (b) the effect of those costs of funding on disclosed *reserves* or *future net revenue*.
3. If the *reporting entity* expects that the costs of funding referred to in section 2, could make development of a *property* uneconomic for that *reporting entity*, disclose that expectation and its plans for the *property*.

PART 6 OTHER OIL AND GAS INFORMATION

Item 6.1 Oil and Gas Properties and Wells

1. Identify and describe generally the *reporting entity's material 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;
 - (d) describing any statutory or other mandatory relinquishments, surrenders, back-ins or changes in ownership; and
 - (e) any material factor that could impact the legal status.
2. State, separately for *oil* wells and *gas* wells, the number of the *reporting entity's* producing wells and non-producing wells, expressed in terms of both *gross* wells and *net* wells, by location.

Item 6.2 Significant Factors or Uncertainties Relevant to Properties With No Attributed Reserves

Identify and discuss significant economic factors or significant uncertainties that affect the anticipated developments or production activities on properties with no attributable reserves.

INSTRUCTIONS

- (1) A *reporting entity* must, under this Item, include a discussion of any significant abandonment costs 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 realised but for those contractual obligations.
- (2) If the information required by this Item is presented in the *reporting entity's* financial statements and notes thereto for the most recent financial year ended, the *reporting entity* satisfies this Item by directing the reader to that presentation

Item 6.3 Forward Contracts

1. If the *reporting entity* 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. If the *reporting entity's* transportation obligations or commitments for future physical deliveries of *oil* or *gas* exceed the *reporting entity'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 entity* 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

1. Disclose by country for the most recent financial year each of the following:
 - (a) *property acquisition costs*, separately for *proved properties* and *unproved properties*;
 - (b) *exploration costs*; and
 - (c) *development costs*.

Instructions

If the costs specified in paragraphs (a) (b) and (c) are presented in the reporting entity'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

2.

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 entity'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* and *service wells* and the number that were dry holes.
2. Describe generally the *reporting entity'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 entity's* share of average daily *production* volume, before deduction of royalties; 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 entity'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 the **SAMOG Code***