

THE SOUTH AFRICAN CODE FOR THE REPORTING OF OIL AND GAS RESOURCES

(THE SAMOG CODE)

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Prepared by:
The South African Oil and Gas (SAMOG) Committee
www.samcode.co.za

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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 (QREs)* 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 Engineers (SPE), 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). In 2007, the second edition of COGEH adopted the PRMS classification system. 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 a 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 disclosure requirement 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.

1 APPLICATION

- 1.1 The SAMOG Code provides the basis for minimum disclosure of information for public reporting of oil and gas reserves and resources. Such reports must comply with this code and be reported in the manner prescribed by Form 1.
- 1.2 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 production 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 by- products; 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:

- (A) a combination of light crude oil and medium crude oil;
- (B) heavy crude oil;
- (C) bitumen;
- (D) natural gas liquids; or
- (E) synthetic crude oil;

(i) 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.

1.3 “Public Reports” means 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.

- 1.4 The following principles should be considered in the application of the Code:

Materiality

- 1.5 This Code applies only in respect of information that is material in respect of a *reporting entity*.
- 1.6 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*.

Transparency

- 1.7 The reader of a Public Report must be provided with sufficient information, the presentation of which is clear and unambiguous, to understand the report and not be misled. The process or methodology should be aligned with the purpose for which the report is intended and should be readily auditable in all material respects

Competency

- 1.8 The Public Report is based on work that is the responsibility of a suitably qualified and experienced person who is subject to an enforceable professional code of ethics.

2 COMPETENCIES AND RESPONSIBILITY

- 2.1 *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 SACNASP, ECSA, the SPEE, a Certified Petroleum Geologist with the American Association of Petroleum Geologists (AAPG) and/or a member of any other Recognised Professional Organisation (RPO). A complete list of recognised organisations will be promulgated by the SSC from time to time;
 - 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*;
-

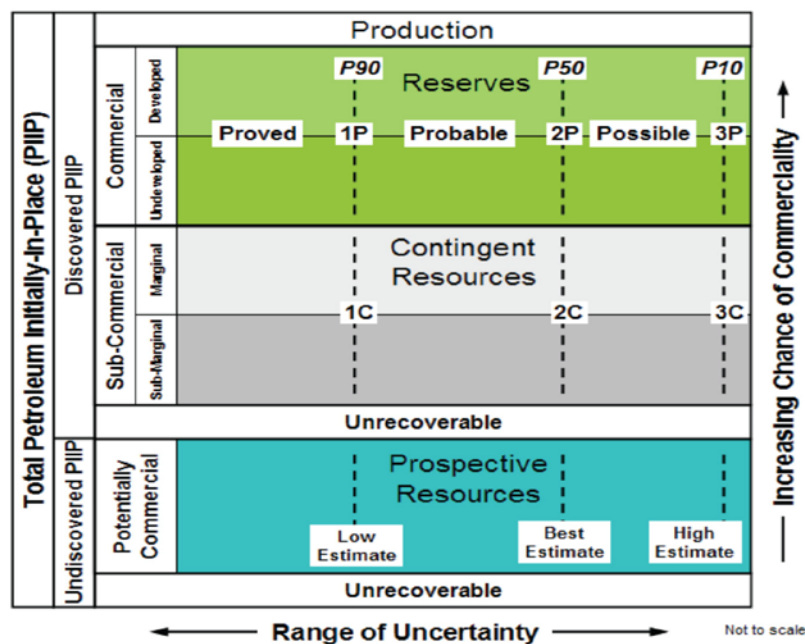
- must be current and competent in the methods and practices of *reserves* and *resource* evaluation; and
- is conversant with the content of SAMOG.

3 REPORTING TERMINOLOGY

3.1 All reports should be prepared having taken into account the principles incorporated in PRMS or COGEH. 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.

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

Figure 1



4 SPECIFIC ITEMS REQUIRED FOR THE SAMOG CODE

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

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; or
- (b) 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 as a minimum 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 *probable reserves* of 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*; and
- (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 PRMS or COGEH.

5.4 Oil and Gas Resources 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 entity* may disclose *resources* or sales of *product types* or associated by-products with respect to alternate reference point if, to a reasonable person, *product types* or associated by-products would be marketable at the alternate reference point.
- (3) If a *reporting entity* discloses *resources* or sales of *product type* or associated by-products 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 Left blank

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 *reporting entity*.

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 pre-development 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 *QRE*;
 - (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 in bold 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 *QRE* or in accordance with the *COGEH 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 – If Netbacks are disclosed the following information must be included:

- (a) **left blank**
- (b) reflect netbacks calculated by subtracting royalties and operating costs from revenues; and
- (b) 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 of 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 Left blank

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.

6 DEFINITIONS

- 6.1** 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

- 6.2 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

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

API

- 6.4 American Petroleum Institute.

Analogous Information

- 6.5 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

- 6.6 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) a real extent;
-

- (iv) anticipated pay thickness;
- (v) flow rates; or
- (vi) hydrocarbon content.

Bitumen

- 6.7 Bitumen means the naturally occurring viscous mixture, consisting mainly of pentanes and heavier hydrocarbons, with a viscosity greater than 10 000 mPa (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)

- 6.8 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].

By-product

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

Coal Bed Methane

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

Contingent Resources Data

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

Conventional Natural Gas

- 6.12 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.

ECSA

6.13 Engineering Council of South Africa.

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) the date to which all *future net revenue* or other cash flow forecasts are discounted to determine net present values.

Entity

- 6.14 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

- 6.15 *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

- 6.16 *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

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

Heavy Crude Oil

- 6.18 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

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

Light Crude Oil

- 6.20 Light crude oil means crude oil with a density greater than 31.1 degrees API gravity

McfGE's (Thousand Cubic Feet of Gas Equivalent)

- 6.21 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

- 6.22 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

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

Natural Gas Liquids

- 6.24 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

- 6.25 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

- 6.26 Oil and gas metric means a numerical measure of a *reporting entity's oil and gas activities*.

Property

- 6.27 A volume of the Earth's crust wherein a corporate entity or individual has contractual rights to extract, process and market a defined portion of specified in-place minerals (including petroleum). Defined in general as an area but may have depth and/or stratigraphic constraints. May also be termed a lease, concession, or license.

Prospective Resources Data

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

Reclamation Costs

- 6.29 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

- 6.30 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

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

Reserves Information

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

Estimates of petroleum *reserves* and may, but will not necessarily, include estimates of

- (i) the future production rates from such *reserves*;
- (ii) the *future net revenue* from such *reserves*; and
- (iii) 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].

SACNASP

- 6.33 The South African Council for Natural Scientific Professions.

Shale Gas

- 6.34 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 absorbed on the kerogen or clay minerals; and
- (B) that requires the use of fracturing techniques to achieve economic production rates.

Synthetic Gas

- 6.35 Synthetic gas means a gaseous fluid:

- (A) generates 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

- 6.36 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

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

7 FORM 1

FORM 1 OIL AND GAS REPORT AND OTHER OIL AND GAS INFORMATION TABLE OF CONTENTS

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Item 6.9 *Production* History

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 South Africa 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 period 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 AND RESOURCES

Item 2.1 Reserves Data (Constant or Forecast Prices and Costs)

1. Breakdown of Reserves – Disclose, by country and in the aggregate, reserves, gross and net, estimated using constant or 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); and
 - (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 – 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 constant or 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.

3. Additional Information Concerning Future Net Revenue

(a) This section 3 applies to *future net revenue* attributable to each of the following *reserves* categories disclosed under item 2.1 (1) estimated using constant or *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 constant or *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 *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 constant or *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 constant or *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); and

(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 constant or *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) Left blank.
- (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 1C 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.
- (7) **Future net revenue** includes the portion attributable to the **reporting entity's** interest under an agreement referred to in Instruction (2).
- (8) **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 Constant Prices

For each product type, disclose the benchmark reference prices for the countries or regions in which the reporting issuer operates, as at the last day of the reporting issuer's most recent financial year, reflected in the reserves data disclosed in response to Item 2.1

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 *QRE*.

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 **QRE** 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 as published in terms of Item 2.1:
 - (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; and
 - (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 constant or **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 **PRMS and COGEH 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 years' ends; 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 five 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 five 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*.

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. 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 constant or *forecast prices and costs*; and
 - (ii) *proved plus probable reserves* (in total) estimated using constant or *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 (e.g. province, country etc.);
 - (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 Resource Disclosure

If disclosure is made under Item 2.1 (4), then identify and discuss significant economic factors or significant uncertainties that affect the anticipated developments or production activities on properties.

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 realising, 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 constant or *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 Left blank

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

- (1) *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*

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*.

INSTRUCTIONS

*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***

