

NATIONAL POLICY No. 2-B

GUIDE FOR ENGINEERS AND GEOLOGISTS SUBMITTING OIL AND GAS REPORTS TO CANADIAN PROVINCIAL SECURITIES ADMINISTRATORS

GENERAL

1. Reports submitted must be engineering documents. They must be factual, and any recommendations must be warranted in light of the information and data presented in the report. If the report contains recommendations, the author must state that, in his judgement, the venture is of sufficient merit to make the work recommended a worthwhile undertaking.
2. If any information and data in an engineering report are not based on the author's own observations and investigations, their source shall be clearly stated, reference shall be made to reports and records from which the information and data was obtained, and the author shall state the degree of reliance he has placed on such reports and records. When information is derived from unpublished or private reports or records, a letter of consent from, and a certificate of qualification of, the author of such reports or records shall be submitted.
3. Reports will be accepted only if prepared by a registered professional engineer or a registered professional geologist who is a member in good standing of an appropriate association of professional engineers or geologists, unless he holds exceptional qualifications and there are unusual circumstances.
4. With reference to item 4.1.5, if principals in the independent consulting firm which prepared the report have or will acquire direct or indirect interests in properties or securities of the issuer or any associate or affiliate of the issuer, such interests must be clearly disclosed in the report.
5. Although Appendix 2 lists certain material in engineering reports which shall be included in a prospectus, the issuer may include additional disclosure and staff of the Securities Commissions may require additional material or disclosure to be included in a prospectus.
6. Reports shall be prepared only by a registered professional engineer or a registered professional geologist who is independent of the issuer or any associate or affiliate of the issuer. Therefore, reports shall not be written by a director, officer or employee of the issuer or any associate or affiliate of the issuer or by any person or company associated with such director, officer or employee. Notwithstanding the foregoing, in-house reports may be accepted at the discretion of the Director of the Securities Commission, but only from large well established issuers.

CONTENT OF OIL AND GAS REPORTS

A complete engineering and geological report for submission to Canadian Provincial Securities Administrators shall include the following material:

1. TABLE OF CONTENTS
2. INTRODUCTION
 - 2.1 Author's terms of reference. State whether the report was prepared specifically for the purpose of submission to Securities Administrators or whether it will serve other purposes as well.
 - 2.2 Names of principal properties. Include all major properties (including all properties to which the proceeds of issue are being applied) and identify them by the commonly referred to field or area names and disclose the jurisdiction (province, state, etc.). Briefly describe and discuss the geology of the properties. Discussion of geographic factors such as climate and accessibility need be included only in special situations such as frontier resources.
 - 2.3 Summary of estimated net reserves and corresponding values.
 - 2.3.1 Proved reserves and dollar values on a net cash-flow basis. Dollar values shall be calculated at current prices and costs, unless under contract as to price, to all future time. Additionally dollar values may be presented based on forecast prices and costs but critical assumptions in such a forecast shall be stated. Net cash-flow values shall be presented at discount rates of 0%, 10%, 15% and 20%.
 - 2.3.2 Probable additional reserves and dollar values on a net cash-flow basis. Dollar values shall be calculated at current prices and costs, unless under contract as to price, to all future time. Additionally, dollar values may be presented based on forecast prices and costs but critical assumptions in such a forecast shall be stated. Net cash-flow values shall be presented at discount rates of 0%, 10%, 15% and 20%. Also, probable additional reserves shall be reduced for an allowance for the risk that is associated with the probability of obtaining production from such reserves.
 - 2.3.3 A statement that the values reported under 2.3.1 and 2.3.2 may not necessarily be the fair market value of the reserves.
 - 2.3.4 A statement as to whether the values are before or after income tax.
 - 2.4 The percentage and quantity of proved producing reserves which are currently on production. (See definition 6 of Appendix 1.)

- 2.5 Definitions employed shall be the same as those listed in Appendix 1 and any deviation shall be stated along with supporting reasons.
- 2.6 Discussion of methods employed. Identify the methods used to estimate reserves and production rates and to convert them to cash flows. Include any assumptions respecting the availability of markets.
- 2.7 Discussion and identification of risk factors used, particularly respecting probable additional reserves, and justification for their selection.
- 2.8 Acceptable disclaimer. State clearly any conditions respecting the responsibility of the author. For example, the author might indicate that all estimated reserve quantities were based on geological and engineering data provided by the issuer although the interpretation of the data was carried out by the author, and might state whether or not he has grounds for a judgement that the data are sound. He shall also state whether he made an on-site visit of the properties and, if not, state briefly the reasons why a visit was judged unnecessary.
- 2.9 Where proceeds of the issue are to be expended on drilling on a specified property(ies), the report shall contain recommendations, conclusions and cost estimates in respect of the proposed drilling. Where appropriate, the author shall discuss the results of prior drilling on the property and on adjoining or nearby areas.
- 2.10 Summary of undeveloped gross and net acreage and value assigned to net acreage.
- 2.11 Signature and professional seal or permit stamp of author.

3. SUPPORTING MATERIAL

- 3.1 Listings of properties shall include, but not be limited to, the following:
 - 3.1.1 jurisdictions and location therein, and names of fields and areas including an index map(s)
 - 3.1.2 Detail maps showing -
 - 3.1.2.1 the issuer's interest lands and the issuer's interest in them
 - 3.1.2.2 wells in which the issuer has an interest and wells of others together with their status.
 - 3.1.3 Brief descriptions of the geology of the issuer's properties.
 - 3.1.4 Tabulations of reservoir rock and fluid parameters for each well or pool including, but not limited

to, depth of each pay zone, its porosity, pay zone thickness (specify gross or net), water saturation, pressure, temperature, recovery factor, etc.

3.1.5 Types of reserves* assigned:

3.1.5.1 crude oil

3.1.5.2 synthetic oil, or bitumen and corresponding synthetic oil yield factor

3.1.5.3 natural gas

3.1.5.4 natural gas liquids

3.1.5.5 sulphur.

*Reserves assigned to "tight-hole" or confidential (by law) areas may be grouped and published as part of the listing as reserves only. Alternatively, if they are not included in the reserves listing, there shall be appropriate discussion describing the method of handling such properties.

3.1.6 Status of reserve assigned:

3.1.6.1 proved or probable additional.

3.1.6.2 proved producing or proved non-producing.

3.1.7 Company interest:

3.1.7.1 gross share of reserves before royalties

3.1.7.2 applicable royalties and/or production payments

3.1.7.3 net share of reserves after royalties.

3.1.8 Quantity of reserve assigned:

3.1.8.1 proved producing, proved non-producing, and total proved

3.1.8.2 probable additional

3.1.8.3 total

3.1.9 Forecast of future net production, revenue, costs and net cash flow on a proved producing, proved non-producing, and total proved reserve basis and on a probable additional reserve basis, by jurisdiction (province, state, etc.), and in total. Dollar values shall be calculated at current prices and costs, unless under contract as to price, to all future time. Additionally, dollar values may be presented based on forecast prices and costs but critical assumptions in such a forecast shall be stated. Net cash flow values shall be presented at discount rates of 0%, 10%, 15% and 20%. Also, probable additional reserves shall be reduced for an allowance for risk that is associated with the probability of obtaining production from such reserves.

3.2 A summary table itemizing the following basic assumptions, where applicable:

3.2.1 crude oil and synthetic oil price forecasts by jurisdiction

3.2.2 natural gas price forecast by jurisdiction

3.2.3 natural gas products price forecasts by jurisdiction

3.2.4 capital and operating costs

3.2.5 forecasts of inflation used respecting capital and operating costs

3.2.6 forecasts of any other factors employed on a general basis (e.g. crown royalty scale if different from those existing as of the effective date of the study).

3.2.7 Details of undeveloped acreage (both gross and net) disclosing field or area name, jurisdiction, value assigned to each separate net acreage, and method of determining those values.

3.2.8 Where proceeds of the issue are to be expended on drilling on a specified property(ies), the report shall contain recommendations, conclusions and cost estimates in respect of the proposed drilling. Where appropriate, the author shall discuss the results of prior drilling on the property and on adjoining or nearby areas.

4. CERTIFICATE OF AUTHOR

4.1 All reports must be submitted in duplicate with the author's certificate attached, both dated and signed. The certificate must contain the professional seal or permit stamp of the author and shall state:

4.1.1 the name, address and occupation of the author

- 4.1.2 the qualifications of the author
- 4.1.3 any conditions respecting the responsibility of the author and whether or not an on-site visit of the properties was made. If a visit was not made, state briefly why a visit was judged unnecessary.
- 4.1.4 the period during which the report was prepared and the effective date of the information therein.
- 4.1.5 whether or not the author has or expects to receive any interest, direct or indirect, in the properties or securities of the issuer or any associate or affiliate of the issuer and, if so, the particulars of the interest or beneficial ownership.

5. LETTER OF CONSENT

- 5.1 The letter shall be addressed to the Securities Commissions and shall include a description of the report from which the engineer or geologist is giving his consent for the inclusion of extracts in a prospectus or other document. It shall state the date of the report as well as the date of the prospectus, and shall contain a statement that he has read the prospectus and has no reason to believe that there are any misrepresentations in the information contained in it that is derived from his report or that is within his knowledge as a result of his employment.

EFFECTIVE DATE:

This policy comes into effect on 15 December, 1982.

Appendix 1.

DEFINITIONS

- 1. **CRUDE OIL:** A mixture, consisting mainly of pentanes and heavier hydrocarbons that may contain sulphur compounds, that is liquid at the conditions under which its volume is measured or estimated, but excluding such liquids obtained from the processing of natural gas.
- 2. **SYNTHETIC OIL:** Oil derived from the upgrading of crude bitumen or by chemical modification of coal or other materials and which is largely interchangeable with conventional crude oil as a refinery feedstock.
- 3. **NATURAL GAS:** The lighter hydrocarbons and associated non- hydrocarbon substances occurring naturally in an underground reservoir, which under atmospheric conditions is essentially a gas, but which may contain liquids. The natural gas reserve estimates should be reported on a marketable basis, that is the gas which is available to a transmission line after removal of certain

hydrocarbons and non-hydrocarbon compounds present in the raw natural gas and which meets specifications for use as a domestic, commercial or industrial fuel.

4. **NATURAL GAS LIQUIDS:** Those hydrocarbon components recovered from raw natural gas as liquids by processing through extraction plants or recovered from field separators, scrubbers or other gathering facilities. These liquids include the hydrocarbon components ethane, propane, butanes and pentanes plus, or a combination thereof.
5. **PROVED RESERVES*:** Those reserves estimated as recoverable under current technology and existing economic conditions, from that portion of a reservoir which can be reasonably evaluated as economically productive on the basis of analysis of drilling, geological, geophysical and engineering data, including the reserves to be obtained by enhanced recovery processes demonstrated to be economic and technically successful in the subject reservoir.

*Where reserves are clearly known to exist in a reservoir and would be physically recoverable but cannot be termed "proved reserves" because they are not commercially recoverable due to their remote location (i.e., frontier reserves), these reserves should be itemized separately in the report and their special circumstances should be fully explained.

6. **PROVED PRODUCING RESERVES:** Those proved reserves that are actually on production or, if not producing, that could be recovered from existing wells or facilities and where the reasons for the current non-producing status is the choice of the owner rather than the lack of markets or some other reasons. An illustration of such a situation is where a well or zone is capable but is shut-in because its deliverability is not required to meet contract commitments.
7. **PROVED NON-PRODUCING RESERVES:** Those proved reserves that are not currently producing either due to lack of facilities and/or markets.
8. **PROBABLE ADDITIONAL RESERVES:** Those reserves which analysis of drilling, geological, geophysical and engineering data does not demonstrate to be proved under current technology and existing economic conditions, but where such analysis suggests the likelihood of their existence and future recovery. Probable additional reserves to be obtained by the application of enhanced recovery processes will be the increased recovery over and above that estimated in the proved category which can be realistically estimated for the pool on the basis of enhanced recovery processes which can be reasonably expected to be instituted in the future.

Appendix 2.

CERTAIN MATERIAL FROM OR RELATED TO ENGINEERING REPORTS WHICH SHALL BE INCLUDED IN A PROSPECTUS

1. A summary of the estimated net reserves of the issuer with the following detail:
 - 1.1 Reserves by jurisdiction and category (proved, proved producing, proved non-producing, probable additional) and type (crude oil, synthetic oil, natural gas, natural gas liquids, sulphur).
 - 1.2 The values assigned to the above reserves on a net cash-flow basis, using discount rates of 0%, 10%, 15% and 20%. Values assigned must be based on prices and costs outlined in item 3.1.9 and disclosure shall be made in the prospectus of prices and costs used.
 - 1.2.1 Estimated total capital costs necessary to achieve the net cash flow, and the amount of such costs estimated to be incurred in each of the first two years of the cash flow estimate.
 - 1.3 A statement in bold print that the values reported under 1.2 may not necessarily be the fair market value of the reserves.
 - 1.4 A statement in bold print as to whether the values are before or after income tax. Disclose the values on an after tax basis, if available.
 - 1.5 The percentage and quantity of proved producing reserves which are currently on production. (See definition 6 of Appendix 1.)
2. A statement disclosing the source of data used in the estimates, including any comments the author of the engineering report might have respecting the soundness of the data.
3. A list of definitions employed.
4. A statement regarding the degree of risk assigned to values, particularly of probable additional reserves including a statement in bold print disclosing the approximate amount, or alternatively the approximate average percentage, by which the volume of probable reserves or their values have been reduced to allow for the risk associated with obtaining production from probable reserves. Where the author has not used percentages or calculated amounts as contemplated in the preceding sentence, a statement in bold print describing the method otherwise employed to allow for such risk.
5. A summary table of the assumptions employed regarding prices, costs, inflation and other forecast factors used.
6. Names of principal properties in which the issuer has an interest, identified by the commonly referred to field or area names and by jurisdiction (province, state, etc.).

7. A summary of undeveloped gross and net acreage by jurisdiction, and value assigned to undeveloped net acreage.
8. Where proceeds of the issue are to be expended on drilling on a specified property(ies), the author's recommendations, conclusions and cost estimates in respect of the proposed drilling.
9. Identification of the complete report, effective date thereof, name of author, and address at which the complete report is available for review.