



**STATEMENT OF RESERVES DATA AND OTHER OIL AND GAS
INFORMATION**

EFFECTIVE AUGUST 31, 2019

DATED NOVEMBER 19, 2019

TABLE OF CONTENTS

GLOSSARY.....	2
ABBREVIATIONS AND CONVERSION.....	5
FORWARD-LOOKING STATEMENTS.....	5
STATEMENT OF RESERVES DATA AND OTHER OIL AND GAS INFORMATION.....	7

APPENDIX

APPENDIX A	CONTINGENT RESOURCE ESTIMATES
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GLOSSARY

Certain terms and abbreviations used in this statement of reserves data and other oil and gas information (the “**Statement**”) are defined below:

“**Chapman**” means Chapman Petroleum Engineering Ltd., independent petroleum consultants of Calgary, Alberta;

“**Company**” or “**Petroteq**”, “**We**”, “**Us**”, “**Our**” means, unless the context indicates or requires otherwise, Petroteq Energy Inc.;

“**COGE Handbook**” means the Canadian Oil and Gas Evaluation Handbook maintained by the Society of Petroleum Evaluation Engineers (Calgary chapter) as amended from time to time;

“**development costs**” means costs incurred to obtain access to reserves and to provide facilities for extracting, treating, gathering and storing the oil and gas from the reserves. More specifically, development costs, including applicable operating costs or support equipment and facilities and other costs of development activities, are costs incurred to:

- a) gain access to and prepare well locations for drilling, including surveying well locations for the purpose of determining specific development drilling sites, clearing ground, draining, road building, and relocating public roads, gas lines and power lines, to the extent necessary in developing the reserves;
- b) drill and equip development wells, development type stratigraphic test wells and service wells, including the costs of platforms and of well equipment such as casing, tubing, pumping equipment and the wellhead assembly;
- c) acquire, construct and install production facilities such as flow lines, separators, treaters, heaters, manifolds, measuring devices and production storage tanks, natural gas cycling and processing plants, and central utility and waste disposal systems; and
- d) provide improved recovery systems;

“**development well**” means a well drilled inside the established limits of an oil or gas reservoir, or in close proximity to the edge of the reservoir, to the depth of a stratigraphic horizon known to be productive;

“**exploration costs**” means costs incurred in identifying areas that may warrant examination and in examining specific areas that are considered to have prospects that may contain oil and gas reserves, including costs of drilling exploratory wells and exploratory type stratigraphic test wells. Exploration costs may be incurred both before acquiring the related property (sometimes referred to in part as “**prospecting costs**”) and after acquiring the property. Exploration costs, which include applicable operating costs of support equipment and facilities and other costs of exploration activities, are:

- a) costs of topographical, geochemical, geological and geophysical studies, rights of access to properties to conduct those studies, and salaries and other expenses of geologists, geophysical crews and others conducting those studies (collectively sometimes referred to as “**geological and geophysical costs**”);
- b) costs of carrying and retiring unproved properties, such as delay rentals, taxes (other than income and capital taxes) on properties, legal costs for title defence and the maintenance of land and lease records;
- c) dry hole contributions and bottom hole contributions;
- d) costs of drilling and equipping exploratory wells; and
- e) costs of drilling exploratory type stratigraphic test wells;

“**forecast prices and costs**” means future prices and costs that are:

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

“future income tax expenses” means future income tax expenses estimated (generally, year-by-year):

- a) making appropriate allocations of estimated unclaimed costs and losses carried forward for tax purposes, between oil and gas activities and other business activities;
- b) without deducting estimated future costs (for example, Crown royalties) that are not deductible in computing taxable income;
- c) taking into account estimated tax credits and allowances (for example, royalty tax credits); and
- d) applying to the future pre-tax net cash flows relating to the reporting issuer’s oil and gas activities the appropriate year-end statutory tax rates, taking into account future tax rates already legislated;

“future net revenue” means the estimated net amount to be received with respect to the development and production of reserves (including synthetic oil, coal bed methane and other non-conventional reserves) estimated using constant prices and costs or forecast prices and costs;

“gross” means:

- a) in relation to the Company’s interest in production or reserves, its “company gross reserves”, which are its working interest (operating or non-operating) share before deduction of royalties and without including any royalty interests of the Company;
- b) in relation to wells, the total number of wells in which the Company has an interest; and
- c) in relation to properties, the total area of properties in which the Company has an interest;

“net” means:

- a) in relation to the Company’s interest in production or reserves its working interest (operating or non-operating) share after deduction of royalty obligations, plus its royalty interest in production or reserves;
- b) in relation to the Company’s interest in wells, the number of wells obtained by aggregating the Company’s working interest in each of its gross wells; and
- c) in relation to the Company’s interest in a property, the total area in which the Company has an interest multiplied by the working interest owned by the Company;

“NI 51-101” means National Instrument 51-101 – *Standard of Disclosure for Oil and Gas Activities* of the Canadian Securities Administrators;

“operating costs” or **“production costs”** means costs incurred to operate and maintain wells and related equipment and facilities, including applicable operating costs of support equipment and facilities and other costs of operating and maintaining those wells and related equipment and facilities;

“production” means recovering, gathering, treating, field or plant processing (for example, processing gas to extract natural gas liquids) and field storage of oil and gas;

“property acquisition costs” means costs incurred to acquire a property (directly by purchase or lease, or indirectly by acquiring another corporate entity with an interest in the property), including:

- a) costs of lease bonuses and options to purchase or lease a property;
- b) the portion of the costs applicable to hydrocarbons when land including rights to hydrocarbons is purchased in fee; and
- c) brokers' fees, recording and registration fees, legal costs and other costs incurred in acquiring properties;

“working interest” means the net interest held in an oil and natural gas property which normally bears its proportionate share of the costs of exploration, development and operations as well as any royalties or other production burdens.

Certain other terms used in this Statement but not defined herein are defined in NI 51-101 and, unless the context otherwise requires, shall have the same meanings herein as in NI 51-101

ABBREVIATIONS AND CONVERSION

In this Statement, the abbreviations set forth below have the following meanings:

Oil	
STB	stock tank barrel of oil
MSTB	one thousand stock tank barrels of oil
API	American Petroleum Institute
°API	an indication of the specific gravity of crude oil measured on the API gravity scale.

All dollar amounts set forth in this Statement are in United States dollars, except where otherwise indicated.

Conversion Table

The following table sets forth certain standard conversions between Standard Imperial Units and the International System of Units (or metric units).

To convert from	To	Multiply by
cubic metres	cubic feet	35.315
barrels	cubic metres	0.159
cubic metres	barrels	6.290
feet	metres	0.305
metres	feet	3.281
acres	hectares	0.4047
Hectares	Acres	2.471

FORWARD-LOOKING STATEMENTS

Certain statements contained in this Statement constitute forward-looking statements. These statements relate to future events of our future performance. All statements other than statements of historical fact may be forward-looking statements. Forward-looking statements are often, but not always, identified by the use of words such as “seek,” “anticipate,” “budget,” “plan,” “continue,” “estimate,” “expect,” “forecast,” “may,” “will,” “project,” “predict,” “potential,” “target,” “intend,” “could,” “might,” “should,” “believe,” and similar expressions. In addition, there are forward-looking statements in Appendix A entitled “*Contingent Resource Estimates*” as to our contingent resource estimates on our Asphalt Ridge Property. These statements involve known and unknown risks, uncertainties and other factors that may cause actual results or events to differ materially from those anticipated in such forward-looking statements. We believe the expectations reflected in these forward-looking statements are reasonable but no assurance can be given that these expectations will prove to be correct and such forward-looking statements included in this Statement should not be unduly relied upon. These statements speak only to estimates as of the date of this Statement.

In addition to the forward-looking statements identified above, this Statement contain forward-looking statements pertaining to the performance characteristics of our bitumen properties; bitumen production levels; the size of our contingent resources, projections of market prices and costs; expectations regarding the ability to raise capital; treatment under governmental regulatory regimes and tax laws; impacts of current commodity prices on the Company, including with respect to budget expectations; and capital expenditure programs.

Actual results achieved during the forecast period will vary from the information provided herein as a result of numerous known and unknown risks and uncertainties and other factors. In addition, these risks and uncertainties are material factors affecting the success of our business. Such factors include, but are not limited to:

uncertainties inherent in the estimation of resources, including whether any reserves will ever be attributed to the Company's properties; since the Company's extraction technology is proprietary, is not widely used in the industry, and has not been used in consistent commercial production, the Company's bitumen resources are classified as a contingent resource because they are not currently considered to be commercially recoverable. Reserves would be assigned to this project once a sufficiently consistent

profitable operation is achieved. A full scale commercial production may engender public opposition; the Company cannot be certain that its bitumen resources will be economically producible and thus cannot be classified as proved or probable reserves in accordance with applicable securities laws; changes in laws or regulations; the ability to implement business strategies or to pursue business opportunities, whether for economic or other reasons; status of the world oil markets, oil prices and price volatility; oil pricing; state of capital markets and the ability of the Company to raise capital; litigation; the commercial and economic viability of the Company's oil sands hydrocarbon extraction technology, and other proprietary technologies developed or licensed by the Company or its subsidiaries, which currently are of an experimental nature and have not been used at full capacity for an extended period of time; reliance on suppliers, contractors, consultants and key personnel; the ability of the Company to maintain its mineral lease holdings; potential failure of the Company's business plans or model; the nature of oil and gas production and oil sands mining, extraction and production; uncertainties in exploration and drilling for oil, gas and other hydrocarbon-bearing substances; unanticipated costs and expenses, availability of financing and other capital; potential damage to or destruction of property, loss of life and environmental damage; risks associated with compliance with environmental protection laws and regulations; uninsurable or uninsured risks; potential conflicts of interest of officers and directors; and other general economic, market and business conditions and factors, many of which are beyond our control, including the risk factors discussed or referred to in the Company's disclosure documents, filed with the securities regulatory authorities in certain provinces of Canada and available at www.sedar.com

The actual results could differ materially from those results anticipated in these forward-looking statements, which are based on assumptions, including as to the market prices for crude oil and natural gas; the continuation of the present policies of the Board of Directors relating to management of Petroteq, capital expenditures and other matters; the continued availability of capital and skilled personnel, acquisitions of reserves and undeveloped lands; the continuation of the current tax and regulatory regime and other assumptions contained in this Statement.

Statements relating to "resources" are deemed to be forward-looking statements, as they involve the implied assessment, based on certain estimates and assumptions that resources described can be profitably produced in the future.

Readers are cautioned that the foregoing lists of factors are not exhaustive. The forward-looking statements contained in this Statement are expressly qualified by this cautionary statement. We do not undertake any obligation to publicly update or revise any forward-looking statements except as required by securities laws or regulations.

STATEMENT OF RESERVES DATA AND OTHER OIL AND GAS INFORMATION

Date of Statement

The statement of reserves data and other oil and gas information is set forth below (the “**Statement**”). The effective date of the Statement is August 31, 2019. The preparation date of the Statement is November 15, 2019. The reserves and resources data conforms to the requirements of NI 51-101.

Reserves and Future Net Revenue

As of August 31, 2019, there are no oil or natural gas reserves attributed to the Company's properties. As such no reserve report has been prepared for the year ended August 31, 2019.

Contingent Resource Estimates

Petroteq engaged Chapman to provide an updated evaluation of, among other things, our Contingent Resources (as defined in Appendix A attached to this Statement) effective August 31, 2019, for our working interest in all of our properties located in the Asphalt Ridge area of Utah, USA. These Contingent Resources are set forth and described in Appendix A attached to this Statement.

Contingent resource estimates have been prepared by a qualified reserves evaluator that is independent of the Company, in accordance with the COGE Handbook.

Oil and Gas Properties and Wells

Petroteq is a fully integrated oil and gas company focused on the development and implementation of a new proprietary technology for oil extraction. The Company has an environmentally safe and sustainable technology for the extraction of heavy and bitumen from oil sands, oil shale deposits and shallow oil deposits. Petroteq is engaged in the development and implementation of its patented environmentally friendly heavy oil processing and extraction technologies. Our proprietary process produces zero greenhouse gas, zero waste and requires no high temperatures. Petroteq is currently focused on developing its oil sands resources and expanding production capacity at its Asphalt Ridge heavy oil extraction and processing facility located near Vernal, Utah.

As at August 31, 2019, all of the Company's oil and gas properties are unproved and have no attributed reserves.

The Company owns 100% working interest in a total 2,541.8 acres of surface mineable bitumen mineral leases in the Asphalt Ridge area of Utah, USA (the “**Asphalt Ridge Property**”). The Asphalt Ridge Property is located onshore.

The Company has completed and tested a pilot extraction plant for the bitumen recovery. The results have been used to establish Contingent Resources for the Asphalt Ridge Property.

As at August 31, 2019, the Company had no producing or non-producing oil or gas wells.

Properties with no Attributed Reserves

As at August 31, 2019, there were no oil or natural gas reserves attributed to the Company's properties.

The Company is in the process of commissioning its mining operation and extraction plant for the bitumen recovery at the Asphalt Ridge Property. The results have been used to establish Contingent Resources for the Asphalt Ridge Property.

Chapman Petroleum has only evaluated Contingent Resources with a Project Maturity Sub-class of “Development Pending”. Petroteq has 100 percent working interest in additional assets in the state of Utah: Tar Sand Triangle area (10,480 gross/net acres) and PR Springs area (1,920 gross/net acres), which are

During the next 12 months there are no lease expiries set to occur.

Significant Factors or Uncertainties Relevant to Properties With No Attributed Reserves

Certain significant economic factors or significant uncertainties that could cause actual results to differ materially from the Company's anticipated development and production activities on properties with no attributed reserves include estimation of resource, status of the world oil markets, oil prices and price volatility; state of capital markets and the ability of the Company to raise capital; litigation; the commercial and economic viability of the Company's oil sands hydrocarbon extraction technology, and other proprietary technologies developed or licensed by the Company or its subsidiaries, which currently are of an experimental nature and have not been used at full capacity for an extended period of time. As there has not been adequate data to assess reclamation costs, the company is relying on it Surety Bond as directed by the State of Utah Department of Oil, Gas, Mining.

Forward Contracts

As of August 31, 2019, Petroteq was not party to any forward sale contracts.

Tax Horizon

The Company was not required to pay income taxes during the year ended August 31, 2019. The Company does not expect to pay income taxes in the next 6 to 8 years.

Costs Incurred

The following table shows (in thousands of dollars) the Company's costs for the categories for the year ended August 31, 2019 in the United States:

	Year ended August 31, 2019
	(US\$)
Property Acquisition Cost	
Proved Properties	0.00
Unproved Properties	23,800,000
Exploration Costs	
Development Costs	
Total	23,800,000

Exploration and Development Activities

The Company participated in no exploratory or development wells during the year ended August 31, 2019. However, the Company did continue to operate the pilot extraction plant at the Asphalt Ridge Project in Uintah County in order to develop and refine this extraction project.

In the United States, the Company most important current and likely exploration and development activities are the development of mining plans for the assigned and approved permits to operate.

Production Estimates and Production History

The Company has no assigned oil and gas reserves as at effective date August 31, 2019, however, it has been operating the pilot plant for the past years resulting in minor sporadic oil production and sales.

The Company has conducted numerous test production runs to commence a commercial level extraction process at this time. Some minor issues were encountered during those tests, including pump failures, dryer plugging and difficulties removing product solids. However, the pilot extraction plant at the Asphalt Ridge Project has verified that the solvent process is able to extract high percentage of the bitumen in the raw oil sands.

APPENDIX A

Petroteq engaged Chapman to provide an updated evaluation of, among other things, our Contingent Resources effective August 31, 2019, for our working interest in all of our property located in the Asphalt Ridge area of Utah, USA (previously defined as “**Asphalt Ridge Property**”), which Contingent Resources are set forth and described below. Petroteq owns an average 100 per cent working interest in our Asphalt Ridge Property. The evaluation procedures employed by Chapman are in compliance with standards contained in the COGE Handbook and the Chapman Report is based on Chapman's September 1, 2019 forecast pricing. All applicable resource definitions are provided in the “*Resource Definitions*” section at the end of Appendix A.

Contingent Resources should not be confused with reserves and readers should review the definitions and notes set forth below. Actual bitumen resources may be greater than or less than the estimates provided herein. There is uncertainty that it will be commercially viable to produce any portion of the resources.

Summary of Risked Oil and Gas Contingent Resources as of December 31, 2018 - Forecast Prices and Costs

Contingent Resources ⁽¹⁾⁽²⁾		
Resources Project Maturity Sub-Class	Bitumen	
	Gross MSTB	Net MSTB
Contingent Resources (2C) Development Pending	77,171	70,997

Notes:

- 1) All volumes listed in the table are risked, company gross sales volumes.
- 2) Refer to “*Resource Definitions*” in this Appendix A for detailed definitions of Contingent Resources and Development Pending.

An estimate of risked net present value (“NPV”) of future net revenue of contingent resources is preliminary in nature and is provided to assist the reader in reaching an opinion on the merit and likelihood of the Petroteq proceeding with the required investment. It includes contingent resources that are considered too uncertain with respect to the chance of development to be classified as reserves. There is uncertainty that the risked NPV of future net revenue will be realized.

Summary of Risked Net Present Value of Future Net Revenues (Contingent Resources) as of August 31, 2019 - Forecast Prices And Costs

Risked Net Present Value of Future Net Revenue ⁽¹⁾					
Resources Project Maturity Sub-Class	Before Income Taxes Discounted at % per Year				
	0	5	10	15	20
(US\$ millions)					
Contingent Resources (2C) Development Pending	5,760	1,133	460	266	179

Notes:

- 1) NPV as per Chapman Independent Resources Evaluation as of August 31, 2019 and based on Chapman forecast pricing at September 1, 2019.
- 2) Refer to “*Resource Definitions*” in this Appendix A for detailed definitions of Contingent Resources and Development Pending.

Forecast Prices Used In Estimates

These are prices and costs that are generally acceptable, in the opinion of Chapman, as being a reasonable outlook of the future as of the evaluation effective date.

The following table details the benchmark bitumen reference prices for the regions in which the Company operates, as at August 31, 2019. The forecast price assumptions assume the continuance of current laws and regulations and take into account inflation with respect to future operating and capital costs.

Summary of Chapman September 1, 2019 Forecast Prices and Inflation and Exchange Rate Assumptions

	WTI ⁽¹⁾	Price Differential	Bitumen Product Price ⁽²⁾
Year	\$US/STB	\$US/STB	\$US/STB
2019	\$62.00	5.00	\$57.00
2020	\$63.00	5.10	\$57.90
2021	\$66.15	5.20	\$60.95
2022	\$69.46	5.31	\$64.15
2023	\$72.93	5.41	\$67.52
2024	\$76.58	5.52	\$71.06
2025	\$78.11	5.63	\$72.48
2026	\$79.67	5.74	\$73.93
2027	\$81.26	5.86	\$75.41
2028	\$82.89	5.98	\$76.91
2029	\$84.55	6.09	\$78.45
2030	\$86.24	6.22	\$80.02
2031	\$87.96	6.34	\$81.62
2032	\$89.72	6.47	\$83.25
2033	\$91.52	6.60	\$84.92
2034	\$93.35	6.73	\$86.62
	+2%/year	+2%/year	

Notes:

- 1) West Texas Intermediate quality (D2/S2) crude (40°API) landed in Cushing, Oklahoma.
- 2) Price used when determining bitumen resources presented as Contingent Resources Development Pending (being the price after applying differential reflecting actual sales price of the bitumen resources).

Projects for Which Resources Are Being Attributed

The Company owns 100% working interest in a total 2,541.8 acres of surface mineable bitumen mineral leases in the Asphalt Ridge Property.

Chapman was commissioned to conduct an Independent Resources Evaluation for the Asphalt Ridge Property. Chapman has prepared best estimates of risked estimates of contingent resources (“CR”) associated with the Asphalt Ridge Property. This evaluation is effective August 31, 2019.

The estimated cost to bring on commercial production from the Development Pending CR for the bitumen product type is approximately US\$14,274,000 (discounted at 10 per cent is approximately US\$12,846,600).

The general timeline for the project on the Asphalt Ridge Property is as follows: September 2016 to May 2019

The estimated date of first commercial production is November 2019.

A description of the recovery technology is as follows: The Extraction Technology, which has been modified since 2015 and unlike the technology utilized in 2015, utilizes no water in the process, is anticipated to produce no greenhouse gases, requires no high temperature and/or pressure for the extraction process, and expects to extract up to 99% of all hydrocarbon content and recycle up to 99% of the solvents. The proprietary solvent composition consists of hydrophobic, hydrophilic and polycyclic hydrocarbons. It is expected to dissolve up to 99% of heavy bitumen/asphalt and other lighter hydrocarbons from the oil sands, and prevent their precipitation during the extraction process. Solvents used in this composition form an azeotropic mixture which has a low boiling point of 70 – 75 C degrees and it is expected to allow recycling of over 99% of the solvent. These features, in the event they produce as anticipated by PQE, make it possible to perform hydrocarbon extraction from oil sands at mild temperatures of 50 – 60 degrees C, leading to high energy and economic efficiency of the extraction of oil from the overall oil sands extraction process. The project on the Asphalt Ridge Property is based on a proprietary development study.

Chance of Discovery and Development Risk

The Asphalt Ridge Property was risked for the chance of commerciality (“COC”), which is defined as follows:

$$\text{COC} = \text{Chance of Development} \times \text{Chance of Discovery}$$

wherein Chance of Discovery for contingent resources is 100% for all Contingent Resources.

The chance of development is the estimated probability that, once discovered, a known accumulation will be commercially developed. Six factors have been considered in determining the Chance of Development as follows:

$$\text{Chance of Development} = \text{Ps (Economic Viability Factor)} \times \text{Ps (Market Access Factor)} \times \text{Ps (Production and Transportation Infrastructure)} \times \text{Ps (Regulatory and Social License)} \times \text{Ps (Corporate and External Approvals)} \times \text{Ps (Reasonable Timetable for Development)}$$

wherein Ps is the probability of success

The six factors were assessed for the Asphalt Ridge Property. The following factors were assessed for Petroteq’s CR to be sub-classified and considered as Development Pending CR:

- Economic Viability Factor: The development project at the Asphalt Ridge based on an internal algorithm, and as such was assigned a factor of 0.90.
- Market Access Factor: based in sales to date by the Company and Refineries in the State of Utah and Colorado and as such was assigned a factor of one.

- Production and Transportation Infrastructure: based in sales to date by the Company and Refineries in the State of Utah and Colorado and based on trucking transportation, and as such was assigned a factor of one.
- Regulatory and Social License: As the Regulatory license is assigned after public questions and follow up by the Company there could potentially be issued. To date, with no objections to the approved permits in place, as per Federal and State regulations in place, as such was assigned a factor of 0.98.
- Corporate and External Approvals: With all Corporate and External approvals in place or to be in place, this was assigned a factor of one.
- Reasonable Timetable for Development: The development time line, based on current engineering, procurement, fabrication and commissioning and start up process, in addition to a skilled work force in the immediate County for further commercial development, and as such was assigned a factor of one. However, as access to capital is determined by external indices, this could have a factor of 1.0. These factors may be inter-related, and care has been taken to ensure that risks are appropriately accounted. The following table summarizes the Chance of Development applied to CR based on the factors assessed.

August 31, 2019 Contingent Resources Risky CR, Unrisky CR and Chance of Development ⁽¹⁾⁽²⁾	Chance of Development	Best Estimate Unrisky	Best Estimate Risky
Bitumen (MSTB)			
Development Pending CR	88.2%	87,495	77,171

Notes:

- 1) All volumes listed in the table are company gross sales volumes.
- 2) Refer to "Resource Definitions" in this Appendix A for detailed definitions of Contingent Resources and Development Pending.

Risks and Significant Positive and Negative Factors

Significant levels of future capital expenditures are required in order for Contingent Resources to be recovered in the future. The principal risks that would inhibit the recovery of additional reserves relate to the potential for variations in the quality of the bitumen accumulation where minimal well data currently exists, access to the capital which would be required to develop the resources, low crude oil prices that would curtail the economics of development, the future performance of wells, regulatory approvals, access to the required services at the appropriate cost, access to market and the effectiveness of Company's technology and applications.

Furthermore, it should be understood that CR estimates reflect data as of the effective date. Although only best estimates are reported, it should be understood that there is a significant degree of uncertainty in these estimates. Additional data may justify upward or downward revisions to the estimates, which in turn would impact CR estimates.

Contingencies

The primary contingencies which prevent the classification of the resources as reserves are:

- Verification of actual full scale processing and operating costs. Although the Company has developed detailed estimates of these costs by operating the pilot plant, they will need to gather additional operations and accounting information in order to know these costs with certainty. Chapman has estimated a 90% probability that operating costs will be in the range sufficient to provide an economically viable operation; and

- Regulatory permission will be granted for all future stages. This is seen as very likely, and there are no major regulatory hurdles remaining to overcome. However, there is potential for public opposition to a project of this nature. The probability of this contingency being overcome (i.e. all future regulatory approvals being granted) is estimated at 98%.

Resource Definitions

The following are excerpts from the definitions of resources and reserves, contained in Section 5 of the COGE Handbook, which is referenced by the Canadian Securities Administrators in “*National Instrument 51-101 Standards of Disclosure for Oil and Gas Activities*”.

a) Fundamental Resource Definitions

Contingent Resources or CR are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations using established technology or technology under development, but which are not currently considered to be commercially recoverable due to one or more contingencies. Contingencies may include factors such as economic, legal, environmental, political, and regulatory matters, or a lack of markets. It is also appropriate to classify as contingent resources the estimated discovered recoverable quantities associated with a project in the early evaluation stage. Contingent Resources are further classified in accordance with the level of certainty associated with the estimates and may be subclassified based on project maturity and/or characterized by their economic status.

Contingent resources are further categorized according to their level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by their economic status

b) Uncertainty Categories for Resource Estimates

The range of uncertainty of estimated recoverable volumes may be represented by either deterministic scenarios or by a probability distribution. Resources should be provided as low, best, and high estimates as follows:

Low Estimate: This is considered to be a conservative estimate of the quantity that will actually be recovered. It is likely that the actual remaining quantities recovered will exceed the low estimate. If probabilistic methods are used, there should be at least a 90 per cent probability (P90) that the quantities actually recovered will equal or exceed the low estimate.

Best Estimate: This is considered to be the best estimate of the quantity that will actually be recovered. It is equally likely that the actual remaining quantities recovered will be greater or less than the best estimate. If probabilistic methods are used, there should be at least a 50 per cent probability (P50) that the quantities actually recovered will equal or exceed the best estimate.

High Estimate: This is considered to be an optimistic estimate of the quantity that will actually be recovered. It is unlikely that the actual remaining quantities recovered will exceed the high estimate. If probabilistic methods are used, there should be at least a 10 per cent probability (P10) that the quantities actually recovered will equal or exceed the high estimate.

This approach to describing uncertainty may be applied to reserves, contingent resources and prospective resources. There may be significant risk that sub-commercial and undiscovered accumulations will not achieve commercial production. However, it is useful to consider and identify the range of potentially recoverable quantities independently of such risk.

c) Discovered and Commercial Status and Risks Associated with Resource Estimates Discovery Status

Total petroleum initially-in-place is first subdivided based on the discovery status of a petroleum accumulation. Discovered PIIP, production, reserves, and contingent resources are associated with known accumulations. Recognition as a known accumulation requires that the accumulation be penetrated by a well and have evidence of the existence of petroleum. The COGE Handbook Consolidated 3rd Edition, Section 1.4.7.2.1.2, provides additional clarification regarding drilling and testing requirements relating to recognition of known accumulations. On the other hand, Prospective resources is undiscovered PIIP which is associated with accumulations yet to be discovered.

Commercial Status

Commercial status differentiates reserves from contingent resources. The following outlines the criteria that should be considered in determining commerciality:

- economic viability of the related development project;
- a reasonable expectation that there will be a market for the expected sales quantities of production required to justify development;
- evidence that the necessary production and transportation facilities are available or can be made available;
- evidence that legal, contractual, environmental, governmental, and other social and economic concerns will allow for the actual implementation of the recovery project being evaluated;
- a reasonable expectation that all required internal and external approvals will be forthcoming. Evidence of this may include items such as signed contracts, budget approvals, and approvals for expenditures, etc.;
- evidence to support a reasonable timetable for development. A reasonable time frame for the initiation of development depends on the specific circumstances and varies according to the scope of the project. While five years is recommended as a maximum time frame for classification of a project as commercial, a longer time frame could be applied where, for example, development of economic projects are deferred at the option of the producer for, among other things, market-related reasons or to meet contractual or strategic objectives.

Commercial Risk Applicable to Resource Estimates

Estimates of recoverable quantities are stated in terms of the sales products derived from a development program, assuming commercial development. It must be recognized that reserves and contingent resources involve different risks associated with achieving commerciality. The likelihood that a project will achieve commerciality is referred to as the “chance of commerciality.” The chance of commerciality varies in different categories of recoverable resources as follows:

Reserves: To be classified as reserves, estimated recoverable quantities must be associated with a project(s) that has demonstrated commercial viability. Under the fiscal conditions applied in the estimation of reserves, the chance of commerciality is effectively 100 per cent.

Contingent Resources: Not all technically feasible development plans will be commercial. The commercial viability of a development project is dependent on the forecast of fiscal conditions over the life of the project. For contingent resources the risk component relating to the likelihood that an accumulation will be commercially developed is referred to as the “chance of development.” For contingent resources the chance of commerciality is equal to the chance of development.

d) Recovery Technology Status

Established Technology: A recovery method that has been proven to be successful in commercial applications in the subject reservoir and is a prerequisite for assigning reserves.

Technology under Development: A recovery process that has been determined to be technically viable via field test and is being field tested further to determine its economic viability in the subject reservoir. Contingent resources may be assigned if the project provides information that is sufficient and of a quality to meet the requirements for this resource class.

Experimental Technology: A technology that is being field tested to determine the technical viability of applying a recovery process to unrecoverable discovered PIIP in a subject reservoir. It cannot be used to assign any class of recoverable resources (i.e., reserves and contingent resources).

e) Economic Status of Resource Estimates

By definition, reserves are commercially (and hence economically) recoverable. A portion of contingent resources may also be associated with projects that are economically viable but have not yet satisfied all requirements of commerciality. Accordingly, it may be a desirable option to subclassify contingent resources by economic status:

Economic Contingent Resources are those contingent resources that are currently economically recoverable. The CR sub-classes included are Development Pending CR, Development on Hold CR, and Development Unclassified CR.

Sub-Economic Contingent Resources are those contingent resources that are not currently economically recoverable. The CR sub-class included is Development Not Viable.

Where evaluations are incomplete such that it is premature to identify the economic viability of a project, it is acceptable to note that project economic status is “undetermined” (i.e., “contingent resources - economic status undetermined”).

In examining economic viability, the same fiscal conditions should be applied as in the estimation of reserves, i.e., specified economic conditions, which are generally accepted as being reasonable (refer to the COGE Handbook Consolidated 3rd Edition, Section 1.4.7.2.1.3).

f) Project Maturity Sub-Classes for Contingent Resources

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

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

Development Unclassified: When the evaluation is incomplete and there is ongoing activity to resolve any risks or uncertainties.

Development Not Viable: Contingent Resource that is not viable in the conditions prevailing at the effective date of the evaluation, and where no further data acquisition or evaluation is currently planned and hence there is a low chance of development.