Evaluation of Crude Oil and Natural Gas Reserves

As of December 31, 2016



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Prepared For:

Maha Energy Biblioteksgatan 1 111 48 Stockholm Sweden

Prepared By:

McDaniel & Associates Consultants Ltd. 2200, 255 – 5th Avenue SW Calgary, Alberta T2P 3G6

February 2017



MAHA ENERGY EVALUATION OF THE TIÊ FIELD

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February 3, 2017

Maha Energy Biblioteksgatan 1 111 48 Stockholm Sweden

Attention: Mr. Jonas Lindvall

Reference: Maha Energy Evaluation of Crude Oil and Natural Gas Reserves, As of December 31, 2016

Dear Sir:

Pursuant to your request, we have prepared an evaluation of the crude oil and natural gas reserves, and the net present values of these for the interests of Maha Energy (the "Company" or "Maha") in the Tiê Field in Brazil as of December 31, 2016.

This report was based on a detailed evaluation of the Tiê Field that was prepared for Gran Tierra Energy Inc. ("Gran Tierra") as of December 31, 2016. Gran Tierra has provided approval for McDaniel & Associates Consultants Ltd. ("McDaniel") to provide the results of the evaluation to Maha whom acquired the Tiê Field from Gran Tierra in February 2017.

The future net revenues and net present values presented in this report were calculated using forecast prices and costs based on our opinion of future crude oil prices at January 1, 2017 and were presented in United States ("US") Dollars. The reserves estimates and future net revenue forecasts have been prepared in accordance with standards set out in the Canadian National Instrument 51-101 ("NI 51-101") and the Canadian Oil and Gas Evaluation Handbook ("COGEH") and 2007 SPE/WPC/AAPG/SPEE Petroleum Resource Management System ("SPE-PRMS").

Total

The Company's share of the crude oil reserves as of December 31, 2016 and the respective net present values assigned to these reserves based on forecast prices and costs assumptions were estimated to be as follows:

ESTIMATED COMPANY SHARE OF RESERVES AS OF DECEMBER 31, 2016

MBBL, MMCF ^{(1) (2)}

	Proved Producing	Proved Developed	Proved Undeveloped	Total Proved	Probable	Total Proved & Probable	Possible	Proved, Probable & Possible
Light/Medium Oil								
Gross (1)	2,366	2,366	4,631	6,997	2,262	9,259	3,763	13,022
Net (2)	2,047	2,047	4,006	6,052	1,956	8,009	3,255	11,264
Natural Gas								
Gross (1)	1,686	1,686	2,460	4,145	1,317	5,462	2,224	7,686
Net ⁽²⁾	1,458	1,458	2,128	3,586	1,139	4,725	1,923	6,648

(1) Gross reserves include the working interest reserves before deductions of royalties payable to others.

(2) Net reserves are based on Company share of reserves after royalties.

ESTIMATED COMPANY SHARE OF NET PRESENT VALUES

AS OF DECEMBER 31, 2016

SM (1) (2)

Before Tax Net Present Value Discounted At

	0%	5%	10%	15%	20%
Proved Producing Reserves	71,798	60,999	52,687	46,166	40,960
Proved Developed Reserves	71,798	60,999	52,687	46,166	40,960
Proved Undeveloped Reserves	218,934	121,154	70,250	42,018	25,506
Total Proved Reserves	290,732	182,153	122,937	88,184	66,466
Probable Reserves	61,313	70,383	65,410	56,784	48,028
Total Proved & Probable Reserves	352,045	252,536	188,347	144,968	114,494
Possible Reserves	189,077	116,095	76,061	52,687	38,302
Total Proved, Probable & Possible Reserves	541,122	368,631	264,407	197,655	152,797

	After Tax Net P	resent Value Dis	counted At		
	0%	5%	10%	15%	20%
Proved Producing Reserves	67,519	57,382	49,575	43,447	38,552
Proved Developed Reserves	67,519	57,382	49,575	43,447	38,552
Proved Undeveloped Reserves	169,956	93,523	53,438	31,099	18,002
Total Proved Reserves	237,475	150,905	103,013	74,546	56,555
Probable Reserves	54,920	61,190	56,500	48,970	41,393
Total Proved & Probable Reserves	292,395	212,094	159,513	123,516	97,948
Possible Reserves	132,106	81,714	54,078	37,924	27,958
Total Proved, Probable & Possible Reserves	424,501	293,809	213,591	161,440	125,906

(1) Based on forecast prices and costs at January 1, 2017 (see Price Schedules Table 11).

(2) The net present values may not necessarily represent the fair market value of the reserves.



In preparing this report, we relied upon certain factual information including ownership and fiscal terms, well data, test data, budgets and other relevant data supplied by Gran Tierra. The extent and character of all factual information supplied were relied upon by us in preparing this report and has been accepted as represented without independent verification. We have relied upon representations made by Gran Tierra as to the completeness and accuracy of the data provided and that no material changes in the performance of the properties has occurred nor is expected to occur, from that which was projected in this report, between the date that the data was obtained for this evaluation and the date of this report, and that no new data has come to light that may result in a material change to the evaluation of the reserves presented in this report.

This report was prepared by McDaniel & Associates Consultants Ltd. for the exclusive use of Maha Energy and is not to be reproduced, distributed or made available, in whole or in part, to any person, company or organization other than Maha Energy without the knowledge and consent of McDaniel & Associates Consultants Ltd. We reserve the right to revise any estimates provided herein if any relevant data existing prior to preparation of this report was not made available, if any data between the effective date of the evaluation and the date of this report were to vary significantly from that forecast, or if any data provided was found to be erroneous.

Sincerely,

McDANIEL & ASSOCIATES CONSULTANTS LTD. APEGA PERMIT NUMBER: P3145

C. Boulton, P. Eng. Vice President

D. Dao, E.I.T. Evaluation Engineer

N. Koshka, E.I.T. Evaluation Engineer

A. Tchernavskikh, P. Geol. Manager, International Geology

M. Alexeev, P. Geol. Senior Geologist

CB/DD/NK/MA/AT:jep [17-0039]



I, Cameron Boulton, Petroleum Engineer of 2200, 255 - 5th Avenue, S.W., Calgary, Alberta, Canada hereby certify:

- 1. That I am a Vice President of McDaniel & Associates Consultants Ltd., APEGA Permit Number P3145, which Company did prepare, at the request of Maha Energy, the report entitled "Maha Energy, Evaluation of Crude Oil and Natural Gas Reserves, Based on Forecast Prices and Costs, As of December 31, 2016", dated February 3, 2017, and that I was involved in the preparation of this report.
- 2. That I attended the Queen's University in the years 2002 to 2006 and that I graduated with a Bachelor of Science degree in Chemical Engineering, that I am a registered Professional Engineer with the Association of Professional Engineers and Geoscientists of Alberta and that I have in excess of 10 years of experience in oil and gas reservoir studies and evaluations.
- 3. That I have no direct or indirect interest in the properties or securities of Maha Energy, nor do I expect to receive any direct or indirect interest in the properties or securities of Maha Energy, or any affiliate thereof.
- 4. That the aforementioned report was not based on a personal field examination of the properties in question, however, such an examination was not deemed necessary in view of the extent and accuracy of the information available on the properties in question.

C. T. Boulton, P. Eng.

Calgary, Alberta Dated: February 3, 2017

I, Derrick Dao, Engineer In Training of 2200, 255 - 5th Avenue, S.W., Calgary, Alberta, Canada hereby certify:

- 1. That I am an Engineer In Training of McDaniel & Associates Consultants Ltd., APEGA Permit Number P3145, which Company did prepare, at the request of Maha Energy, the report entitled "Maha Energy, Evaluation of Crude Oil and Natural Gas Reserves, Based on Forecast Prices and Costs, As of December 31, 2016", dated February 3, 2017, and that I was involved in the preparation of this report.
- 2. That I attended the University of Calgary in the years 2009 to 2013 and that I graduated with a Bachelor of Chemical and Petroleum Engineering, and that I am a registered Engineer In Training with the Association of Professional Engineers and Geoscientists of Alberta and that I have in excess of three years of experience in oil and gas reservoir studies and evaluations.
- 3. That I have no direct or indirect interest in the properties or securities of Maha Energy, nor do I expect to receive any direct or indirect interest in the properties or securities of Maha Energy, or any affiliate thereof.
- 4. That the aforementioned report was not based on a personal field examination of the properties in question, however, such an examination was not deemed necessary in view of the extent and accuracy of the information available on the properties in question.

Derrick Dao. E. L T.

Calgary, Alberta Dated: February 3, 2017

I, Nathan Koshka, Engineer In Training of 2200, 255 - 5th Avenue, S.W., Calgary, Alberta, Canada hereby certify:

- 1. That I am an Engineer In Training of McDaniel & Associates Consultants Ltd., APEGA Permit Number P3145, which Company did prepare, at the request of Maha Energy, the report entitled "Maha Energy, Evaluation of Crude Oil and Natural Gas Reserves, Based on Forecast Prices and Costs, As of December 31, 2016", dated February 3, 2017, and that I was involved in the preparation of this report.
- 2. That I attended the University of Calgary in the years 2011 to 2016 and that I graduated with a Bachelor of Chemical and Petroleum Engineering, and that I am a registered Engineer In Training with the Association of Professional Engineers and Geoscientists of Alberta and that I have less than one year of experience in oil and gas reservoir studies and evaluations.
- 3. That I have no direct or indirect interest in the properties or securities of Maha Energy, nor do I expect to receive any direct or indirect interest in the properties or securities of Maha Energy, or any affiliate thereof.
- 4. That the aforementioned report was not based on a personal field examination of the properties in question, however, such an examination was not deemed necessary in view of the extent and accuracy of the information available on the properties in question.

Kash

N. Koshka, E. I. T.

Calgary, Alberta Dated: February 3, 2017

I, Anatoli V. Tchernavskikh, Petroleum Geologist, of 2200, 255 - 5th Avenue, S.W., Calgary, Alberta, Canada hereby certify:

- 1. That I am the Manager of International Geology of McDaniel & Associates Consultants Ltd., APEGA Permit Number P3145, which Company did prepare, at the request of Maha Energy, the report entitled "Maha Energy, Evaluation of Crude Oil and Natural Gas Reserves, Based on Forecast Prices and Costs, As of December 31, 2016", dated February 3, 2017, and that I was involved in the preparation of this report.
- 2. That I attended Moscow State University (Russia) in the years 1984 to 1991, graduating with a Honorary Master of Science degree in Geology; that I am a registered Professional Geologist with the Association of Professional Engineers and Geoscientists of Alberta and that I have in excess of 20 years of experience in oil and gas reservoir studies and evaluations.
- 3. That I have no direct or indirect interest in the properties or securities of Maha Energy, nor do I expect to receive any direct or indirect interest in the properties or securities of Maha Energy, or any affiliate thereof.
- 4. That the aforementioned report was not based on a personal field examination of the properties in question, however, such an examination was not deemed necessary in view of the extent and accuracy of the information available on the properties in question.

A. V. Tchernavskikh, P. Geol.

Calgary, Alberta Dated: February 3, 2017

I, Mikhail B. Alexeev, Petroleum Geologist of 2200, 255 - 5th Avenue, S.W., Calgary, Alberta, Canada hereby certify:

- 1. That I am a Geologist for McDaniel & Associates Consultants Ltd., APEGA Permit Number P3145, which Company did prepare, at the request of Maha Energy, the report entitled "Maha Energy, Evaluation of Crude Oil and Natural Gas Reserves, Based on Forecast Prices and Costs, As of December 31, 2016", dated February 3, 2017, and that I was involved in the preparation of this report.
- 2. That I attended the Moscow State University in the years 1987 to 1993, graduating with a Master of Science degree in Geology; that I am a registered Geologist with the Association of Professional Engineers and Geoscientists of Alberta and that I have in excess of 15 years of experience in oil and gas reservoir studies and evaluations.
- 3. That I have no direct or indirect interest in the properties or securities of Maha Energy, nor do I expect to receive any direct or indirect interest in the properties or securities of Maha Energy, or any affiliate thereof.
- 4. That the aforementioned report was not based on a personal field examination of the properties in question, however, such an examination was not deemed necessary in view of the extent and accuracy of the information available on the properties in question.

Mikhail B. Alexeev, P. Geol.

Calgary, Alberta Dated: February 3, 2017

Evaluation of Crude Oil Reserves Tiê Field - Brazil As of December 31, 2016

Property Discussion

INTRODUCTION

Crude oil and natural gas reserves estimates and their associated net present values were prepared in this report for the interests of Maha Energy in the Tiê Field in Brazil. The reserves were estimated at December 31, 2016 and the revenue forecasts and net present value estimates were calculated using forecast prices and costs using our opinion of future crude oil prices at January 1, 2017 and were presented in United States ("US") Dollars. The reserves estimates presented herein were estimated as of the effective date and based on information available to that time. The reserves estimates and future net revenue forecasts have been prepared in accordance with standards set out in the Canadian National Instrument 51-101 ("NI 51-101") and the Canadian Oil and Gas Evaluation Handbook ("COGEH") and 2007 SPE/WPC/AAPG/SPEE Petroleum Resource Management System ("SPE-PRMS").

An overview of the Tiê Field and a discussion of the methodology employed in arriving at the crude oil reserves and net present value estimates is presented in this report.

PROPERTY OVERVIEW

The Tiê Field is located in the Block REC-T-155 in the Recôncavo Basin in Eastern Brazil, as shown in Figure 1. Maha acquired the Tiê Field from Gran Tierra Energy Inc. in February 2017 and subsequently will hold a 100 percent working interest in the field. This property is subject to an effective combined royalty of 13.5 percent.

The Tiê Field was discovered in 2009 with the drilling of well 1-ALV-2-BA ("ALV-2") and delineated with wells 3-GTE-3D-BA ("GTE-3") and 3-GTE-4DPA-BA ("GTE-4") in 2011 and 2012. In September 2012, Gran Tierra received declaration of commerciality. A three dimensional ("3D") seismic survey was acquired in 2010 and re-processed in 2013. The ALV-2 well produced from the Middle Sergi Formation until it was shut-in in July 2014. This well is planned to be converted to a water injection well. The GTE-3 initially produced solely from the Middle Sergi Formation until both wells were successfully dual completed in 2014.

Oil is currently trucked 35 kilometres to a Petrobras oil receiving terminal and allows up to 1,100 bopd to be sold through this terminal. Another contract is also in place with a local refinery, DAX Oil Refino S.A., allowing the operator to sell up to an additional 135 bopd. In addition to the oil, up to 40,000 m³/day of produced associated gas can be sold, obligated by contract, to a compressed natural gas station operated by CDGN Logistica S.A. A water injection pressure maintenance project is planned and the appropriate facility modifications will be made in 2017.

SOURCE AND QUALITY OF DATA

Essentially all of the basic information employed in the preparation of this report was obtained from Gran Tierra's Calgary office. A workshop was setup by Gran Tierra, which provided detailed information on the geological, geophysical and engineering aspects of each field.

Digital logging data and deviation surveys were provided for all wells. Petrophysical interpretations, mud log data, completion and test data, final well reports and workover reports were available for selected wells. Routine core analysis, special core analysis and reservoir fluid studies, where available, were provided. Seismic interpretation of surfaces and faults for the key horizons were provided in digital format and the actual seismic project was available for review on a workstation setup by Gran Tierra.

It is our opinion that the data available for this evaluation was of good quality and sufficient to prepare reasonable estimates of the reserves for this property.

GEOLOGY

Regional Geology

The Tiê Field is located in central part of the Recôncavo Basin. This Basin is located on Brazil's Atlantic Coast near the City of Salvador, and has an area of about 10,000 square kilometres ("km²") and is one of the principal petroleum provinces of Brazil. The Recôncavo Basin was initiated due to extensional forces that acted on the Gondwana paleo-continent during Mezozoic time. The Basin is an intracratonic half graben and is separated from the Tucan Basin to the north and northwest by the basement high and to the south from the Camamu Basin by the Barra fault system. The eastern basin boundary is related to the Salvador fault.

There are four main stages in the history of the Basin development. The first Sag stage was initiated during the Permian time where clastic and evaporates accumulations dominated. The next stage was a Pre-rift stage, which occurred during Jurassic time and lead to thick fluvio and lacustrine clastic accumulations. The major Rift stage continued during Cretaceous time and resulted in a thick clastic sedimentation. The post-rift stage began in the Late Cretaceous and is associated with minor clastic rock accumulations. The total thickness of sedimentary rocks in the Recôncavo Basin is up to 8,000 metres.



Intensive faulting occurred during the deposition of the Candeias and Lower Ilhas when the basin became a rapidly sinking trough. Accelerated growth of the Salvador and Mata-Catu uplifts, the most prominent structural features of the Basin, produced two principal (northeast and northwest trending) sets of normal faults. A late post-rift tectonic phase re-activated ancient faults and caused new ones to form. Consequently, the Basin is characterized by a complex system of faulted blocks.

The main oil source rock in the Basin according to published data is the Candeias Formation (Cretaceous age). The main reservoirs are fluvial-eolian sands of the Sergi and Agua Grande formations and turbidities of the Candeias, Marfim and Maracangalha formations.

Geology of the Tiê Field

The Tiê Field is surrounded by number of oil producing fields including the Agua Grande Field, Fazenda Field and other oil and gas fields. The structure is defined by 3D seismic and five wells have been drilled within the Block boundary.

The field is associated with a relatively large faulted anticline trap with a three-way structural closure and fault limitation on the east. There are two structural highs separated by a small saddle area inside main structure. All three producing wells are located in the northern part (high) of the field. The south closure of the structure is not very well defined. There are two main productive zones in the field area: Middle Sergi and Agua Grande.

A brief description of each productive zone is presented in more detail below.

Agua Grande Zone

The Agua Grande zone is Cretaceous (Berriasian) age and was penetrated by all wells in the area. It contains the primary oil-bearing reservoir, which consists of clean sand deposited in a fluvio-aeolian environment. The gross thickness of the sand is usually 15 to 20 metres. The lower part of interval is reported to have fluvial genesis and it has lower porosity while the upper of the interval has aeolian sand with excellent reservoir characteristics. The oil-water contact ("OWC") was interpreted to be at a depth of 1,932 metres subsea. The southern part of the pool has been penetrated by one old well which was drilled close to the OWC and was subsequently abandoned. Based on the log interpretation, the average porosity was estimated to be 17.3 percent and average net reservoir to gross ratio was interpreted to be 86 percent. The connate water saturation was estimated to be 34.5 percent.

Middle Sergi Zone

The Middle Sergi zone is located approximately 100 metres below the base of the Agua Grande zone. This zone is Upper Jurassic (Tithonian) age and consists of clean sand with minor shale content, which was deposited in fluvio-aeolian environment. The gross



thickness of the Middle Sergi reservoir is 20 to 25 metres. The OWC was interpreted to be at a depth of 2,048 metres subsea. There are two structure highs over the field and the saddle area between these highs is a few metres above the interpreted OWC. For the purposes of this evaluation, the southern lobe was not classified as reserves as it could be a separate accumulation. Based on the log interpretation, the average porosity was estimated to be 15.2 percent and average net reservoir to gross ratio was interpreted to be 89 percent. The connate water saturation was estimated to be 36.3 percent.

Geophysics

The structure of the Tiê Field is defined by 3D seismic data. The data quality and the syntheticto-well ties are generally good. The structure is a three-way dip closure against a sealing fault. The seismic interpretation and time-depth conversion were done in Petrel and the depth conversion was done using T-D relationships at 64 well control points in the field.

The structure consists of two lobes. The northern lobe, where most of the wells are located, is structurally well defined by a combination of seismic and well data. The structural definition of the southern lobe, which is separated from the northern lobe by a saddle, is poorer. There is only one well in the south, CD-001, which is interpreted to have been drilled on the OWC. The interpreted seismic shows connectivity with the northern lobe; however, this lobe has a higher degree of uncertainty due to sparse well control.

RESERVES ESTIMATES

The crude oil reserves were based on volumetric estimates considering all available data including structural and net pay interpretations, test data, production data, reservoir simulation, performance of analogous reservoirs and economics of development. A summary of the original oil in-place ("OOIP") and reserves estimates for each zone are presented in Table 7 and a summary of various reservoir and fluid properties in Table 8. The reserves were classified into Proved Producing ("PP"), Proved Developed ("PD"), Proved Undeveloped ("PUD"), Total Proved ("1P"), Proved plus Probable ("2P") and Proved plus Probable plus Possible ("3P") classes as defined in the Reserves and Resources Classification section of this report.

Reservoir and Fluid Properties

The Agua Grande Formation contains a 36 degree crude oil with a formation volume factor of 1.39, solution gas-oil ratio ("GOR") of 633 scf/bbl and oil viscosity at reservoir conditions of 0.86 cP. The drive mechanism for the Agua Grande Formation is expected to be edge water drive given that none of the wells are directly underlain by water and this would be consistent with other fields in the area.



The Middle Sergi Formation contains a 36 to 38 degree crude oil with a formation volume factor of 1.35, GOR of 633 to 725 scf/bbl and oil viscosity at reservoir conditions of 0.67 cP. The drive mechanism for the Middle Sergi Formation is expected to be a combination of bottom water and edge water drive.

Well Tests & Production History

The ALV-2 well commenced production from the Sergi Formation in mid-2010 until it was shut-in in July 2014. During this time the well largely maintained oil rates of approximately 450 bopd before declining in its final year with a slight breakthrough in water. The ALV-2 well has been converted to a dual water injection well, which will help provide pressure maintenance and ensure proper sweep efficiency to both zones. The GTE-3 initially produced solely from the Middle Sergi Formation in late 2012, while GTE-4 produced solely from the Agua Grande Formation in late 2012 until both wells were successfully dual completed in 2014. Both wells are producing at restricted rates so it is difficult to draw any conclusions on the performance of the two zones at this stage.

Gross Pay Maps and Original Oil-in-Place Estimates

The OOIP was volumetrically calculated using the gross rock volumes and the petrophysical parameters and fluid parameters from wells in the Tiê Field. Gross rock volume ("GRV") was estimated using the gross oil thickness map based on the top structure map and the OWC mentioned in the Geology of the Tiê Field section. Structure and gross oil thickness maps for the Agua Grande and Middle Sergi are presented in Figures 2 to 7.

There is uncertainty in the seismic interpretation and whether the southern lobe containing the 1-CD-0001-BA well ("CD-0001") is connected to the main pool. The seismic has been re-interpreted and based on this the two lobes are connected in both the Agua Grande and Middle Sergi formations. It was recently discovered that an oil fluid sample was actually recovered in the CD-0001 well in the Agua Grande Formation; however, the oil container was accidentally spilled and the sample was lost. Furthermore, oil can be interpreted from the CD-0001 well in the Agua Grande Formation. As such, the full GRV including the southern lobe was included in the 3P case for the Agua Grande Formation. The 1P and 2P OOIP were limited to the main lobe as presented in Figure 7. For the Middle Sergi Formation the 1P, 2P and 3P OOIP was limited to the main lobe as the CD-0001 well is interpreted to be wet.

Recovery Factors

The recovery factors for the Agua Grande and Middle Sergi formations were based on a combination of several factors including a review of the performance characteristics of the field, analogous fields in the area, theoretical recovery factors under Buckley-Leverett displacement theory and the previous operator's simulation model.



The previous operator has conducted a detailed simulation study to assess the recovery factors that could be obtained through different scenarios. McDaniel reviewed the simulation and believes that the model incorporates all of the available data. There is still considerable data that needs to be acquired to refine the simulation model, particularly special core analysis. The current simulation model used vertical permeability factors and relative permeability curves from nearby, analogous fields. The field is also in the early stages of depletion, which makes it difficult to conduct a reliable history match. The recovery factors generated from the reservoir simulation showed 45 percent from the Agua Grande and 57 percent from the Middle Sergi based on the conversion of wells ALV-2 and GTE-3 to water injection wells, a future attic well and artificial lift in the producing wells.

Given the favourable mobility ratios and under saturated light oil, recovery factors are expected to be quite high in the thicker, up-dip areas of the reservoir under either a water drive or water injection scheme. However, with the limited production history there is still uncertainty in the long term performance, amount of aquifer support and vertical and areal sweep efficiency under water injection, all of which leads to uncertainty in the recoverable oil volumes. After considering all of the relevant factors, the main lobe in the Agua Grande Formation was assigned recovery factors of 35, 42.5 and 50 percent on a 1P, 2P and 3P basis respectively and the southern lobe was assigned 45 percent on a 3P basis. The Middle Sergi Formation was assigned slightly higher recovery factors of 37.5, 45 and 55 percent on a 1P, 2P and 3P basis respectively.

RESERVES AND RESOURCES CLASSIFICATION

The crude oil reserves and the crude oil and natural gas contingent resources estimates presented in this report were based on the Canadian reserves definitions and guidelines prepared by the Standing Committee on Reserves Definitions of the CIM (Petroleum Society) as presented in the COGE Handbook. A summary of those definitions is presented below.

Reserves

Reserves are estimated remaining quantities of oil and natural gas and related substances anticipated to be recoverable from known accumulations, as of a given date, based on the analysis of drilling, geological, geophysical and engineering date; the use of established technology; and specified economic conditions, which are generally accepted as being reasonable. Reserves are further classified according to the level of certainty associated with the estimates and may be sub-classified based on development and production status.

Development and Production Status

Each of the reserves categories (proved, probable and possible) may be divided into developed and undeveloped categories:



- **Developed reserves** are those reserves that are expected to be recovered from existing wells and installed facilities or, if facilities have not been installed, that would involve a low expenditure (for example, when compared to the cost of drilling a well) to put the reserves on production. The developed category may be subdivided into producing and non-producing.
- **Developed producing reserves** are those reserves that are expected to be recovered from completion intervals open at the time of the estimate. These reserves may be currently producing or, if shut-in, they must have previously been on production, and the date of resumption of production must be known with reasonable certainty.
- **Developed non-producing reserves** are those reserves that either have not been on production, or have previously been on production, but are shut-in, and the date of resumption of production is unknown.
- Undeveloped reserves are those reserves expected to be recovered from known accumulations where a significant expenditure (for example, when compared to the cost of drilling a well) is required to render them capable of production. They must fully meet the requirements of the reserves category (proved, probable, possible) to which they are assigned.

In multi-well pools it may be appropriate to allocate total pool reserves between the developed and undeveloped categories or to subdivide the developed reserves for the pool between developed producing and developed non-producing. This allocation should be based on the estimator's assessment as to the reserves that will be recovered from specific wells, facilities and completion intervals in the pool and their respective development and production status.

Reserves Categories

Reserves are estimated remaining quantities of oil and natural gas and related substances anticipated to be recoverable from known accumulations, as of a given date, based on

- analysis of drilling, geological, geophysical and engineering data;
- the use of established technology; and
- specified economic conditions, which are generally accepted as being reasonable, and shall be disclosed.

Reserves are classified according to the degree of certainty associated with the estimates

- **Proved reserves** are those reserves that can be estimated with a high degree of certainty to be recoverable. It is likely that the actual remaining quantities recovered will exceed the estimated proved reserves.
- **Probable reserves** are those additional reserves that are less certain to be recovered than proved reserves. It is equally likely that the actual remaining quantities recovered will be greater or less than the sum of the estimated proved plus probable reserves.



• **Possible reserves** are those additional reserves that are less certain to be recovered than probable reserves. It is unlikely that the actual remaining quantities recovered will exceed the sum of the estimated proved plus probable plus possible reserves.

Other criteria that must also be met for the classification of reserves are provided in the COGE Handbook.

Levels of Certainty for Reported Reserves

The qualitative certainty levels referred to in the definitions above are applicable to individual reserves entities (which refers to the lowest level at which reserves calculations are performed) and to reported reserves (which refers to the highest-level sum of individual entity estimates for which reserves estimates are presented). Reported reserves should target the following levels of certainty under a specific set of economic conditions:

- at least a 90 percent probability that the quantities actually recovered will equal or exceed the estimated proved reserves;
- at least a 50 percent probability that the quantities actually recovered will equal or exceed the sum of the estimated proved plus probable reserves; and
- at least a 10 percent probability that the quantities actually recovered will equal or exceed the sum of the estimated proved plus probable plus possible reserves.

Additional clarification of certainty levels associated with reserves estimates and the effect of aggregation is provided in the COGE Handbook.

Project Maturity Sub-Classes

The use of project maturity sub-classes is relevant for all resource classes and is recommended, within the COGE Handbook, for best practice. The boundaries between the maturity sub-classes represent "decision gates" that reflect the actions (business decisions) required by the resource owner to move the project up the maturity "ladder" towards commercial production. Figure 7 presented below, displays the COGE Handbook sub-classes with respect to the SPE-PRMS resources classification framework.





Sub-Classes Based on Project Maturity

Resources Other Than Reserves

The estimation and classification of resources other than reserves is detailed in Section 2 of COGE Volume 2. A summary of the definitions pertaining to contingent resources and prospective resources are presented below.

Contingent Resources

Contingent resources are defined as 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 sub-classified based on project maturity and/or characterized by their economic status.



Prospective Resources

Prospective resources are defined as those quantities of petroleum estimated, as of a given date, to be potentially recoverable from undiscovered accumulations by application of future development projects. Prospective resources have both an associated chance of discovery and a chance of development. Prospective resources are further subdivided in accordance with the level of certainty associated with recoverable estimates assuming their discovery and development and may be sub-classified based on project maturity.

Resource Uncertainty Categories

Estimates of resources always involve uncertainty, and the degree of uncertainty can vary widely between accumulations/projects and over the life of a project. Consequently, estimates of resources should generally be quoted as a range according to the level of confidence associated with the estimates. An understanding of statistical concepts and terminology is essential to understanding the confidence associated with resources definitions and categories.

The range of uncertainty of estimated recoverable volumes may be represented by either deterministic scenarios or 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 percent 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 percent 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 percent probability (P10) that the quantities actually recovered will equal or exceed the high estimate.

Contingent Resources Categories

For Contingent Resources, the general cumulative terms low/best/high estimates are denoted as 1C/2C/3C respectively. No specific terms are defined for incremental quantities within Contingent Resources.



Prospective Resources Categories

For Prospective Resources, the general cumulative terms low/best/high estimates apply. No specific terms are defined for incremental quantities within Prospective Resources.

PRODUCTION FORECASTS AND DEVELOPMENT PLANS

After converting GTE-07 to a water source well and ALV-02 to a dual injection well in 2016 the plan is to implement a water injection project and install the appropriate facilities. The oil production rate is currently limited to 1,100 bopd through the Carmo facility and another additional 135 bopd sold to another local refinery. Prior to acquisition by Maha, the previous operator was negotiating a deal with Transpetro and Petrobras Marketing in Aracaju, which would allow additional oil above the current sales constraints to be sold offshore to Petrobras Marketing. A facility expansion along with the drilling of an up-dip development well will be required to achieve 3,000 bopd.

The 1P forecast is based on drilling one producer, converting one well to an injector later and installing artificial lift on all producing wells and eventually reaching and maintaining oil production rates at 1,100 bopd for several years. The 2P and 3P forecasts are based on similar assumptions, but increasing production rates up to a production plateau of 3,000 bopd although the 3P case includes one additional well in the southern lobe.

REVENUE FORECASTS

The net present values of the crude oil reserves were based on future production and revenue analyses. All of the revenues and costs presented in this report were presented in US Dollars.

The future crude oil revenue was derived by employing the future production forecast for each reserves category and the McDaniel January 1, 2017 forecast of future crude oil prices. The current differential to Brent is \$11.50/bbl based on sales to Petrobras and the future differential for all reserve cases is forecasted to be the same \$11.50/bbl but with increased operating costs attributed to additional trucking to another terminal. A gas contract with CDGN Logistica S.A. was also signed which is volume weighted. A summary of the resulting field prices is presented in Table 11.

The fiscal regime for the Tiê Field is detailed in Table 9. Government share of revenues is through a state royalty. Operating costs were based on a combination of the 2016 accounting, 2017/2018 budget and our experience of analogous oil projects and are summarized in Table 9. Capital costs were based on the 2017/2018 budget provided by the previous operator and are summarized in Table 10. An allowance was made for well abandonment costs at the end of each respective forecast.



Production and revenue forecasts were prepared for the PP, PD, 1P, 2P and 3P categories. The net present values for the proved non-producing reserves were calculated by subtracting the PP net present values from the PD net present values. The net present values for the proved undeveloped reserves were calculated by subtracting the PD net present values from the 1P net present values. The net present value estimates for the probable reserves were calculated by subtracting the 1P net present values from the 2P net present values. The net present value estimates for the probable reserves were calculated by subtracting the 1P net present values from the 2P net present values. The net present value estimates for the possible reserves were calculated by subtracting the 2P net present value.

A summary of the reserves and net present value estimates were presented in Table A and detailed revenue forecasts for the PP, PD, 1P, 2P and 3P reserves in Tables 2, 3, 4, 5 and 6 respectively.



Prices: McD. Jan 1, 2017 Eff. Date: Dec 31, 2016 Currency: USD

Maha Energy

Total Company Reserves and Net Present Value Forecast Prices and Costs as of December 31, 2016

Tie

	PDP	PNP	PUD	ТР	PPDP	PPNP	PPUD	TPP	PPPDP	PPPNP	PPPUD	TPPP
Light and Medium Oil (Mbbl)												
Working Interest Volume	2,366.3	-	4,630.8	6,997.1	2,366.3	-	6,892.5	9,258.8	2,366.3	-	10,655.8	13,022.2
Royalty Interest Volume Net Volume	- 2,046.9	-	4,005.6	- 6,052.5	- 2,046.9	-	- 5,962.0	- 8,008.9	2,046.9	-	- 9,217.3	- 11,264.2
Natural Gas (MMcf)												
Working Interest Volume	1,685.6	-	2,459.7	4,145.3	1,685.6	-	3,776.6	5,462.2	1,685.6	-	6,000.3	7,685.9
Net Volume	- 1,458.1	-	- 2,127.6	3,585.7	- 1,458.1	-	- 3,266.8	4,724.8	- 1,458.1	-	- 5,190.2	- 6,648.3
Total (MBOE) (1)												
Working Interest Volume	2,647.3	-	5,040.7	7,688.0	2,647.3	-	7,521.9	10,169.2	2,647.3	-	11,655.9	14,303.1
Royalty Interest Volume Net Volume	- 2,289.9	-	4,360.2	- 6,650.1	2,289.9	-	- 6,506.4	- 8,796.3	2,289.9	-	- 10,082.3	- 12,372.2
Net Present Value Before Tax (M\$)												
0.0%	71,797.8	-	218,934.5	290,732.3	71,797.8	-	280,247.6	352,045.4	71,797.8	-	469,324.1	541,121.9
5.0%	60,999.2	-	121,154.1	182,153.3	60,999.2	-	191,537.2	252,536.4	60,999.2	-	307,631.9	368,631.0
10.0%	52,687.4	-	70,249.5	122,937.0	52,687.4	-	135,659.4	188,346.8	52,687.4	-	211,720.0	264,407.4
15.0%	46,166.2	-	42,018.3	88,184.5	46,166.2	-	98,801.9	144,968.1	46,166.2	-	151,488.8	197,655.0
20.0%	40,960.2	-	25,506.1	66,466.3	40,960.2	-	73,534.3	114,494.4	40,960.2	-	111,836.6	152,796.8
\$/BOE Before Tax (2)												
0.0%	27.12	-	43.43	37.82	27.12	-	37.26	34.62	27.12	-	40.27	37.83
5.0%	23.04	-	24.04	23.69	23.04	-	25.46	24.83	23.04	-	26.39	25.77
10.0%	19.90	-	13.94	15.99	19.90	-	18.04	18.52	19.90	-	18.16	18.49
15.0%	17.44	-	8.34	11.47	17.44	-	13.14	14.26	17.44	-	13.00	13.82
20.0%	15.47	-	5.06	8.65	15.47	-	9.78	11.26	15.47	-	9.59	10.68
Net Present Value After Tax (M\$)												
0.0%	67,519.2	-	169,955.9	237,475.1	67,519.2	-	224,875.4	292,394.6	67,519.2	-	356,981.4	424,500.6
5.0%	57,382.3	-	93,522.5	150,904.8	57,382.3	-	154,712.2	212,094.5	57,382.3	-	236,426.4	293,808.6
10.0%	49,575.0	-	53,438.0	103,013.0	49,575.0	-	109,938.1	159,513.1	49,575.0	-	164,016.2	213,591.2
15.0%	43,446.6	-	31,099.2	74,545.8	43,446.6	-	80,069.4	123,516.0	43,446.6	-	117,993.5	161,440.1
20.0%	38,552.3	-	18,002.3	56,554.6	38,552.3	-	59,395.5	97,947.7	38,552.3	-	87,353.7	125,906.0

Barrels of Oil Equivalent based on 6:1 for Natural Gas, 1:1 for Condensate and C5+, 1:1 for Ethane, 1:1 for Propane, 1:1 for Butanes. BOE's may be misleading, particularly if used in isolation. A BOE conversion ratio of 6 Mcf:1 bbl is based on an energy equivalency conversion method primarily applicable at the burner tip and does not represent a value equivalency at the wellhead.
 NPV/BOE based on Company Share BOE reserves.



17-0039

Table A

Forecast of Production and Revenue - Company Share Forecast Prices and Costs as of December 31, 2016 Proved Developed Producing Reserves

Tie

		Р	roperty Gro	oss		_	Crude O	il		Natural Ga	IS	Natu	ral Gas Li	quids		
Year	No.Of Wells	Crude Oil bbl/d	Natural Gas Mcf/d	NGL bbl/d	Total BOE/d	Annual Volume Mbbl	Sales Price \$/bbl	Sales Revenue M\$	Annual Volume MMcf	Sales Price \$/Mcf	Sales Revenue M\$	Annual Volume Mbbl	Sales Price \$/bbl	Sales Revenue M\$	Other Revenue M\$	Sales Revenue M\$
2017	2.0	1,112	824	-	1,249	406	44.50	18,054	301	1.47	442	-	-	-	-	18,496
2018	2.0	1,045	775	-	1,174	381	48.08	18,337	283	1.47	416	-	-	-	-	18,753
2019	2.0	1,100	816	-	1,236	402	51.54	20,694	298	1.47	438	-	-	-	-	21,132
2020	2.0	933	683	-	1,047	341	58.01	19,811	250	1.47	367	-	-	-	-	20,178
2021	2.0	672	477	-	752	245	64.57	15,843	174	1.47	256	-	-	-	-	16,099
2022	2.0	492	339	-	549	180	65.82	11,828	124	1.47	182	-	-	-	-	12,010
2023	2.0	366	245	-	407	134	67.07	8,961	89	1.47	131	-	-	-	-	9,092
2024	2.0	276	180	-	306	101	68.41	6,908	66	1.47	97	-	-	-	-	7,005
2025	1.3	181	107	-	199	66	69.86	4,610	39	1.47	57	-	-	-	-	4,668
2026	1.0	134	75	-	146	49	71.28	3,476	27	1.47	40	-	-	-	-	3,516
2027	1.0	108	61	-	119	40	72.61	2,875	22	1.47	33	-	-	-	-	2,908
2028	0.7	61	34	-	66	22	74.08	1,647	12	1.47	18	-	-	-	-	1,665
2029	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rem.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	2,366	56.22	133,044	1,686	1.47	2,478	-	-	-	-	135,522
@10.00%	-	-	-	-	-	-	39.86	94,333	-	1.09	1,845	-	-	-	-	96,178

			F	Royalties						Not	
-	State Ro	yalty		Other Rov.	T -4			Net Volumes		Interest	Other
- Year	Oil M\$	Gas M\$	HPS M\$	& Burdens M\$	10ta	ai	Oil Mbbl	Gas MMcf	Liquids Mbbl	Revenue M\$	Revenue M\$
2017	2 437	. 60	· · · ·		2 497	13.5	351	260	-	15 999	. 24
2018	2 476	56			2,532	13.5	330	245	-	16 221	23
2019	2,794	59			2,853	13.5	347	258	-	18,279	24
2020	2.674	50			2,724	13.5	295	216	-	17,454	
2021	2,139	35			2,173	13.5	212	151	-	13,926	-
2022	1.597	25			1.621	13.5	155	107	-	10.388	-
2023	1,210	18			1.227	13.5	116	77	-	7.865	-
2024	933	13			946	13.5	87	57	-	6.059	-
2025	622	8			630	13.5	57	34	-	4.037	-
2026	469	5			475	13.5	42	24	-	3.042	-
2027	388	4			393	13.5	34	19	-	2.515	-
2028	222	2			225	13.5	19	11	-	1,440	-
2029	-	-			-	-	-	-	-	-	-
2030	-	-			-	-	-	-	-	-	-
2031	-	-			-	-	-	-	-	-	-
Rem.	-	-			-	-	-	-	-	-	-
Total	17,961	335			18,295	13.5	2,047	1,458	-	117,227	80
@10.00%	12,735	249			12,984	13.5	-	-	-	83,194	68

			Abd. &			Future N	let Revenue Bet	fore Tax		Afte	r Tax
Year	Operatin M\$	g Costs \$/BOE	Recl. Costs M\$	Net Op. Income M\$	Capital Costs M\$	Annual M\$	Cum. M\$	NPV @10.0% M\$	Taxes Payable M\$	Annual M\$	NPV @10.0% M\$
2017	4,167	9.14	-	11.856	3,290	8.566	8.566	8,181	547	8.019	7.659
2018	4.095	9.55	-	12,149	632	11.517	20.083	9,987	608	10,909	9,460
2019	4,276	9.48	-	14.028	1.290	12,738	32.821	10.044	737	12.000	9,463
2020	4,059	10.59	-	13,404	1,316	12,089	44,910	8,697	744	11,344	8,163
2021	3,649	13.30	-	10,277	-	10,277	55,186	6,715	605	9,672	6,320
2022	3,379	16.87	-	7,009	-	7,009	62,196	4,164	389	6,620	3,933
2023	3,201	21.56	-	4,664	-	4,664	66,859	2,519	232	4,432	2,394
2024	2,871	25.64	-	3,189	-	3,189	70,048	1,567	312	2,877	1,414
2025	2,388	32.94	-	1,649	-	1,649	71,697	740	103	1,546	694
2026	2,050	38.44	885	107	-	107	71,804	38	-	107	38
2027	2,038	47.07	-	477	-	477	72,282	177	-	477	177
2028	1,357	55.83	-	83	-	83	72,365	29	-	83	29
2029	-	-	567	-567	-	-567	71,798	-170	-	-567	-170
2030	-	-	-	-	-	-	71,798	-	-	-	-
2031	-	-	-	-	-	-	71,798	-	-	-	-
Rem.	-	-	-	-	-	-	-	-	-	-	-
Total	37,529	-	1,452	78,326	6,528	71,798	-	52,687	4,279	67,519	49,575
@10.00%	24.419	-	535	58,309	5.621	52.687	-	-	3,112	49.575	-

	R	emaining Re	serves	
Product	Gross Lease	W.I.	R.I.	Net
Light and Medium Oil (Mbbl)	2,366	2,366	-	2,047
Natural Gas (MMcf)	1,686	1,686	-	1,458
Total (MBOE)	2,647	2,647	-	2,290

& Associates Consultants Ltd.

				Net	Present Value	- M\$	
			@ 0.0%	@ 5.0%	@ 10.0%	@ 15.0%	@ 20.0%
RLI Remaining Life Price Schedule	5.70 yrs 11.66 yrs G170101	Before Taxes After Taxes	71,798 67,519	60,999 57,382	52,687 49,575	46,166 43,447	40,960 38,552
				Mc ⊡	Daniel		
7-0030			V T	T			

Forecast of Production and Revenue - Company Share Forecast Prices and Costs as of December 31, 2016 **Proved Developed Reserves**

Tie

		Р	roperty Gro	oss			Crude O	il		Natural Ga	IS	Natu	ral Gas Li	quids		
Year	No.Of Wells	Crude Oil bbl/d	Natural Gas Mcf/d	NGL bbl/d	Total BOE/d	Annual Volume Mbbl	Sales Price \$/bbl	Sales Revenue M\$	Annual Volume MMcf	Sales Price \$/Mcf	Sales Revenue M\$	Annual Volume Mbbl	Sales Price \$/bbl	Sales Revenue M\$	Other Revenue M\$	Sales Revenue M\$
2017	2.0	1,112	824	-	1,249	406	44.50	18,054	301	1.47	442	-	-	-	-	18,496
2018	2.0	1,045	775	-	1,174	381	48.08	18,337	283	1.47	416	-	-	-	-	18,753
2019	2.0	1,100	816	-	1,236	402	51.54	20,694	298	1.47	438	-	-	-	-	21,132
2020	2.0	933	683	-	1,047	341	58.01	19,811	250	1.47	367	-	-	-	-	20,178
2021	2.0	672	477	-	752	245	64.57	15,843	174	1.47	256	-	-	-	-	16,099
2022	2.0	492	339	-	549	180	65.82	11,828	124	1.47	182	-	-	-	-	12,010
2023	2.0	366	245	-	407	134	67.07	8,961	89	1.47	131	-	-	-	-	9,092
2024	2.0	276	180	-	306	101	68.41	6,908	66	1.47	97	-	-	-	-	7,005
2025	1.3	181	107	-	199	66	69.86	4,610	39	1.47	57	-	-	-	-	4,668
2026	1.0	134	75	-	146	49	71.28	3,476	27	1.47	40	-	-	-	-	3,516
2027	1.0	108	61	-	119	40	72.61	2,875	22	1.47	33	-	-	-	-	2,908
2028	0.7	61	34	-	66	22	74.08	1,647	12	1.47	18	-	-	-	-	1,665
2029	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rem.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	2,366	56.22	133,044	1,686	1.47	2,478	-	-	-	-	135,522
@10.00%	-	-	-	-	-	-	39.86	94,333	-	1.09	1,845	-	-	-	-	96,178

			F	Royalties						Not	
-	State Ro	yalty		Other Rov.	T -4			Net Volumes		Interest	Other
- Year	Oil M\$	Gas M\$	HPS M\$	& Burdens M\$	10ta	ai	Oil Mbbl	Gas MMcf	Liquids Mbbl	Revenue M\$	Revenue M\$
2017	2 437	. 60	· · · ·		2 497	13.5	351	260	-	15 999	. 24
2018	2 476	56			2,532	13.5	330	245	-	16 221	23
2019	2,794	59			2,853	13.5	347	258	-	18,279	24
2020	2.674	50			2,724	13.5	295	216	-	17,454	9
2021	2,139	35			2,173	13.5	212	151	-	13,926	-
2022	1.597	25			1.621	13.5	155	107	-	10.388	-
2023	1,210	18			1.227	13.5	116	77	-	7.865	-
2024	933	13			946	13.5	87	57	-	6.059	-
2025	622	8			630	13.5	57	34	-	4.037	-
2026	469	5			475	13.5	42	24	-	3.042	-
2027	388	4			393	13.5	34	19	-	2.515	-
2028	222	2			225	13.5	19	11	-	1,440	-
2029	-	-			-	-	-	-	-	-	-
2030	-	-			-	-	-	-	-	-	-
2031	-	-			-	-	-	-	-	-	-
Rem.	-	-			-	-	-	-	-	-	-
Total	17,961	335			18,295	13.5	2,047	1,458	-	117,227	80
@10.00%	12,735	249			12,984	13.5	-	-	-	83,194	68

			Abd. &			Future N	let Revenue Bef	ore Tax		Afte	r Tax
Voar	Operatin M\$	g Costs	Recl. Costs	Net Op. Income	Capital Costs	Annual	Cum.	NPV @10.0% M\$	Taxes Payable	Annual M\$	NPV @10.0%
2017	4 4 6 7	0.14	iπφ	11.050	2 200	0.500	0.500	0 101	E 47	0.010	7.650
2017	4,107	9.14	-	11,650	3,290	0,000	0,000	0,101	547	0,019	7,009
2018	4,095	9.55	-	12,149	632	11,517	20,083	9,987	608	10,909	9,460
2019	4,276	9.48	-	14,028	1,290	12,738	32,821	10,044	737	12,000	9,463
2020	4,059	10.59	-	13,404	1,316	12,089	44,910	8,697	744	11,344	8,163
2021	3,649	13.30	-	10,277	-	10,277	55,186	6,715	605	9,672	6,320
2022	3,379	16.87	-	7,009	-	7,009	62,196	4,164	389	6,620	3,933
2023	3,201	21.56	-	4,664	-	4,664	66,859	2,519	232	4,432	2,394
2024	2,871	25.64	-	3,189	-	3,189	70,048	1,567	312	2,877	1,414
2025	2,388	32.94	-	1,649	-	1,649	71,697	740	103	1,546	694
2026	2,050	38.44	885	107	-	107	71,804	38	-	107	38
2027	2,038	47.07	-	477	-	477	72,282	177	-	477	177
2028	1,357	55.83	-	83	-	83	72,365	29	-	83	29
2029	-	-	567	-567	-	-567	71,798	-170	-	-567	-170
2030	-	-	-	-	-	-	71,798	-	-	-	-
2031	-	-	-	-	-	-	71,798	-	-	-	-
Rem.	-	-	-	-	-	-	-	-	-	-	-
Total	37,529	-	1,452	78,326	6,528	71,798	-	52,687	4,279	67,519	49,575
@10.00%	24.419	-	535	58.309	5.621	52.687	-	-	3.112	49.575	-

Product	Remaining Reserves									
Product	Gross Lease	W.I.	R.I.	Net						
Light and Medium Oil (Mbbl)	2,366	2,366	-	2,047						
Natural Gas (MMcf)	1,686	1,686	-	1,458						
Total (MBOE)	2,647	2,647	-	2,290						

& Associates Consultants Ltd.

				Net	Present Value	- M\$	
			@ 0.0%	@ 5.0%	@ 10.0%	@ 15.0%	@ 20.0%
RLI Remaining Life Price Schedule	5.70 yrs 11.66 yrs G170101	Before Taxes After Taxes	71,798 67,519	60,999 57,382	52,687 49,575	46,166 43,447	40,960 38,552
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Forecast of Production and Revenue - Company Share Forecast Prices and Costs as of December 31, 2016 **Total Proved Reserves**

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		Р	roperty Gro	ss			Crude O	il		Natural Ga	IS	Natu	ral Gas Li	quids		
Year	No.Of Wells	Crude Oil bbl/d	Natural Gas Mcf/d	NGL bbl/d	Total BOE/d	Annual Volume Mbbl	Sales Price \$/bbl	Sales Revenue M\$	Annual Volume MMcf	Sales Price \$/Mcf	Sales Revenue M\$	Annual Volume Mbbl	Sales Price \$/bbl	Sales Revenue M\$	Other Revenue M\$	Sales Revenue M\$
2017	2.0	1,112	824	-	1,249	406	44.50	18,054	301	1.47	442	-	-	-	-	18,496
2018	2.0	1,045	696	-	1,161	381	48.08	18,337	254	1.47	374	-	-	-	-	18,711
2019	3.0	1,100	636	-	1,206	402	51.54	20,694	232	1.47	341	-	-	-	-	21,036
2020	3.0	1,100	636	-	1,206	403	58.01	23,353	233	1.47	342	-	-	-	-	23,695
2021	3.0	1,100	636	-	1,206	402	64.56	25,922	232	1.47	341	-	-	-	-	26,264
2022	3.0	1,100	636	-	1,206	402	65.82	26,426	232	1.47	341	-	-	-	-	26,767
2023	3.0	1,100	636	-	1,206	402	67.07	26,927	232	1.47	341	-	-	-	-	27,268
2024	3.0	1,100	636	-	1,206	403	68.41	27,541	233	1.47	342	-	-	-	-	27,884
2025	3.0	1,100	636	-	1,206	402	69.85	28,044	232	1.47	341	-	-	-	-	28,385
2026	3.0	1,100	636	-	1,206	402	71.28	28,619	232	1.47	341	-	-	-	-	28,960
2027	3.0	1,100	636	-	1,206	402	72.61	29,152	232	1.47	341	-	-	-	-	29,493
2028	3.0	1,100	636	-	1,206	403	74.03	29,804	233	1.47	342	-	-	-	-	30,147
2029	3.0	1,026	593	-	1,125	375	75.65	28,331	217	1.47	318	-	-	-	-	28,650
2030	3.0	892	516	-	978	326	77.16	25,121	188	1.47	277	-	-	-	-	25,397
2031	3.0	775	448	-	850	283	78.67	22,264	164	1.47	241	-	-	-	-	22,504
Rem.	2.8	413.5	239.1	-	453.4	1,209	84.47	102,094	699	1.47	1,027	-	-	-	-	103,121
Total	-	-	-	-	-	6,997	68.70	480,682	4,145	1.47	6,094	-	-	-	-	486,776
@10.00%	-	-	-	-	-	-	30.16	211,041	-	0.72	2,986	-	-	-	-	214,027

			F	Royalties						Not	
-	State Ro	yalty		Other Rov.	T -4			Net Volumes		Interest	Other
Year	Oil M\$	Gas M\$	HPS M\$	& Burdens M\$	10ta	ai	Oil Mbbl	Gas MMcf	Liquids Mbbl	Revenue M\$	Revenue M\$
2017	2 437	60			2 497	13.5	351	260	-	15 999	24
2018	2,476	50			2,526	13.5	330	220	-	16,185	12
2019	2,794	46			2.840	13.5	347	201	-	18,196	-
2020	3,153	46			3,199	13.5	348	201	-	20,496	-
2021	3,500	46			3,546	13.5	347	201	-	22,718	-
2022	3,567	46			3.614	13.5	347	201	-	23,153	-
2023	3,635	46			3,681	13.5	347	201	-	23,587	-
2024	3,718	46			3,764	13.5	348	201	-	24,119	-
2025	3,786	46			3,832	13.5	347	201	-	24,553	-
2026	3,864	46			3,910	13.5	347	201	-	25,050	-
2027	3,936	46			3,982	13.5	347	201	-	25,512	-
2028	4,024	46			4,070	13.5	348	201	-	26,077	-
2029	3,825	43			3,868	13.5	324	187	-	24,782	-
2030	3,391	37			3,429	13.5	282	163	-	21,969	-
2031	3,006	32			3,038	13.5	245	142	-	19,466	-
Rem.	13,783	139			13,921	13.5	1,045	604	-	89,200	-
Total	64,892	823			65,715	13.5	6,052	3,586	-	421,061	36
@10.00%	28,491	403			28,894	13.5	-	-	-	185,133	33

		Abd. &			Future N	let Revenue Bef	ore Tax		After	r Tax	
Year	Operatin M\$	g Costs \$/BOE	Recl. Costs M\$	Net Op. Income M\$	Capital Costs M\$	Annual M\$	Cum. M\$	NPV @10.0% M\$	Taxes Payable M\$	Annual M\$	NPV @10.0% M\$
2017	4 167	9 14		11 856	5 020	6.836	6 836	6 539	1 007	5 829	5 578
2018	4 095	9.66	-	12 102	6 833	5 268	12 105	4 593	1,009	4 259	3 718
2019	4 440	10.09	-	13 756	7 860	5,896	18 001	4 423	1 120	4 776	3 540
2020	4.534	10.27	-	15,962	1.347	14.615	32,616	10.477	1.345	13,270	9,513
2021	4.619	10.49	-	18.099	32	18.067	50.683	11.768	1.574	16,493	10,743
2022	4,712	10.70	-	18,442	33	18,409	69.092	10,901	1.610	16,799	9,947
2023	4,806	10.92	-	18,781	34	18,747	87,839	10,092	1,646	17,101	9,206
2024	4,908	11.12	-	19,211	34	19,177	107,016	9,386	3,769	15,408	7,541
2025	5,000	11.36	-	19,553	35	19,518	126,534	8,683	3,852	15,666	6,970
2026	5,100	11.59	-	19,950	1,458	18,493	145,027	7,482	3,905	14,587	5,902
2027	5,202	11.82	-	20,310	36	20,273	165,300	7,454	3,990	16,283	5,987
2028	5,312	12.04	-	20,764	37	20,727	186,027	6,929	4,094	16,633	5,560
2029	5,250	12.79	-	19,532	38	19,494	205,522	5,931	3,859	15,636	4,759
2030	5,056	14.16	-	16,913	38	16,875	222,396	4,668	3,337	13,538	3,746
2031	4,891	15.76	-	14,575	39	14,535	236,932	3,655	2,869	11,667	2,935
Rem.	31,232	-	1,867	56,100	2,300	53,800	53,800	9,956	14,271	39,530	7,370
Total	103,323	-	1,867	315,907	25,174	290,732	-	122,937	53,257	237,475	103,013
@10.00%	42,738	-	203	142,226	19,289	122,937	-	-	19,924	103,013	-

	R	emaining Re	serves	
Product	Gross Lease	W.I.	R.I.	Net
Light and Medium Oil (Mbbl)	6,997	6,997	-	6,052
Natural Gas (MMcf)	4,145	4,145	-	3,586
Total (MBOE)	7,688	7,688	-	6,650

& Associates Consultants Ltd.

				Net	Present Value	- M\$	
			@ 0.0%	@ 5.0%	@ 10.0%	@ 15.0%	@ 20.0%
RLI Remaining Life Price Schedule	16.55 yrs 22.33 yrs G170101	Before Taxes After Taxes	290,732 237,475	182,153 150,905	122,937 103,013	88,184 74,546	66,466 56,555
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Forecast of Production and Revenue - Company Share Forecast Prices and Costs as of December 31, 2016 Total Proved & Probable Reserves

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		Р	roperty Gro	oss			Crude O	il		Natural Ga	IS	Natu	ral Gas Li	quids		
Year	No.Of Wells	Crude Oil bbl/d	Natural Gas Mcf/d	NGL bbl/d	Total BOE/d	Annual Volume Mbbl	Sales Price \$/bbl	Sales Revenue M\$	Annual Volume MMcf	Sales Price \$/Mcf	Sales Revenue M\$	Annual Volume Mbbl	Sales Price \$/bbl	Sales Revenue M\$	Other Revenue M\$	Sales Revenue M\$
2017	2.0	1,112	824	-	1,249	406	44.50	18,054	301	1.47	442	-	-	-	-	18,496
2018	2.0	1,354	902	-	1,504	494	48.08	23,755	329	1.47	484	-	-	-	-	24,239
2019	3.0	2,500	1,445	-	2,741	913	51.54	47,033	528	1.47	775	-	-	-	-	47,808
2020	3.0	3,000	1,734	-	3,289	1,098	58.01	63,690	635	1.47	933	-	-	-	-	64,624
2021	3.0	3,000	1,734	-	3,289	1,095	64.56	70,697	633	1.47	931	-	-	-	-	71,628
2022	3.0	2,716	1,570	-	2,978	991	65.82	65,260	573	1.47	843	-	-	-	-	66,103
2023	3.0	2,222	1,285	-	2,436	811	67.07	54,395	469	1.47	689	-	-	-	-	55,085
2024	3.0	1,817	1,050	-	1,992	665	68.41	45,499	384	1.47	565	-	-	-	-	46,065
2025	3.0	1,486	859	-	1,629	542	69.85	37,886	314	1.47	461	-	-	-	-	38,347
2026	3.0	1,216	703	-	1,333	444	71.28	31,627	256	1.47	377	-	-	-	-	32,004
2027	3.0	994	575	-	1,090	363	72.61	26,353	210	1.47	308	-	-	-	-	26,661
2028	3.0	813	470	-	891	298	74.03	22,034	172	1.47	253	-	-	-	-	22,287
2029	3.0	665	384	-	729	243	75.65	18,362	140	1.47	206	-	-	-	-	18,568
2030	3.0	544	314	-	596	199	77.16	15,320	115	1.47	169	-	-	-	-	15,489
2031	3.0	445	257	-	488	162	78.67	12,777	94	1.47	138	-	-	-	-	12,915
Rem.	2.8	209.4	121.0	-	229.6	536	83.70	44,831	310	1.47	455	-	-	-	-	45,286
Total	-	-	-	-	-	9,259	64.54	597,574	5,462	1.47	8,029	-	-	-	-	605,604
@10.00%	-	-	-	-	-	-	35.12	325,180	-	0.85	4,662	-	-	-	-	329,842

			F	Royalties						Not	
-	State Ro	oyalty		Other Rov.	T -4			Net Volumes		Interest	Other
Year	Oil M\$	Gas M\$	HPS M\$	& Burdens M\$	10ta	%	Oil Mbbl	Gas MMcf	Liquids Mbbl	Revenue M\$	Revenue M\$
2017	2.437	60			2.497	13.5	351	260	-	15.999	24
2018	3.207	65			3.272	13.5	427	285	-	20,967	54
2019	6,349	105			6,454	13.5	789	456	-	41,354	90
2020	8,598	126			8,724	13.5	950	549	-	55,899	108
2021	9,544	126			9,670	13.5	947	548	-	61,958	108
2022	8,810	114			8,924	13.5	858	496	-	57,179	97
2023	7,343	93			7,436	13.5	702	406	-	47,648	80
2024	6,142	76			6,219	13.5	575	333	-	39,846	65
2025	5,115	62			5,177	13.5	469	271	-	33,170	35
2026	4,270	51			4,321	13.5	384	222	-	27,684	12
2027	3,558	42			3,599	13.5	314	181	-	23,062	-
2028	2,975	34			3,009	13.5	257	149	-	19,278	-
2029	2,479	28			2,507	13.5	210	121	-	16,061	-
2030	2,068	23			2,091	13.5	172	99	-	13,398	-
2031	1,725	19			1,743	13.5	140	81	-	11,171	-
Rem.	6,052	61			6,114	13.5	463	268	-	39,172	-
Total	80,673	1,084			81,757	13.5	8,009	4,725	-	523,847	673
@10.00%	43,899	629			44,529	13.5	-	-	-	285,313	441

			Abd. &			Future N	let Revenue Bef	fore Tax		After Tax	
Year	Operatin M\$	g Costs \$/BOE	Recl. Costs M\$	Net Op. Income M\$	Capital Costs M\$	Annual M\$	Cum. M\$	NPV @10.0% M\$	Taxes Payable M\$	Annual M\$	NPV @10.0% M\$
2017	4,167	9.14	-	11.856	7,925	3.931	3.931	3,780	1.056	2.875	2.772
2018	5.303	9.66	-	15.718	18,139	-2.422	1.510	-2.033	1.317	-3.738	-3,175
2019	8,600	8.60	-	32.844	13,949	18.896	20,405	14,689	2.685	16.211	12.572
2020	10,043	8.34	-	45,964	32	45,932	66,338	32,915	3,918	42,014	30,107
2021	10,223	8.52	-	51,842	32	51,810	118,148	33,748	4,548	47,262	30,785
2022	9,687	8.91	-	47,589	33	47,556	165,705	28,208	4,186	43,370	25,729
2023	8,568	9.64	-	39,160	1,709	37,451	203,156	20,200	3,415	34,036	18,362
2024	7,656	10.50	-	32,255	34	32,221	235,376	15,797	6,539	25,681	12,597
2025	6,881	11.57	-	26,324	35	26,290	261,666	11,717	7,315	18,975	8,462
2026	6,257	12.86	-	21,439	36	21,404	283,069	8,672	5,949	15,454	6,266
2027	5,746	14.44	-	17,316	1,487	15,829	298,899	5,834	4,689	11,140	4,110
2028	5,336	16.35	-	13,942	37	13,905	312,803	4,657	3,755	10,150	3,402
2029	4,993	18.77	-	11,068	38	11,030	323,833	3,359	2,957	8,073	2,460
2030	4,724	21.70	-	8,674	38	8,635	332,469	2,391	2,287	6,348	1,759
2031	4,511	25.33	-	6,660	39	6,621	339,090	1,667	1,720	4,902	1,235
Rem.	24,079	-	1,840	13,253	298	12,956	12,956	2,747	3,315	9,641	2,072
Total	126,775	-	1,840	395,906	43,860	352,045	-	188,347	59,651	292,395	159,513
@10.00%	61,143	-	215	224,397	36,050	188,347	-	-	28,834	159,513	-

	Remaining Reserves								
Product	Gross Lease	W.I.	R.I.	Net					
Light and Medium Oil (Mbbl)	9,259	9,259	-	8,009					
Natural Gas (MMcf)	5,462	5,462	-	4,725					
Total (MBOE)	10,169	10,169	-	8,796					

& Associates Consultants Ltd.

			Net Present Value - M\$								
			@ 0.0%	@ 5.0%	@ 10.0%	@ 15.0%	@ 20.0%				
RLI Remaining Life Price Schedule	21.89 yrs 21.58 yrs G170101	Before Taxes After Taxes	352,045 292,395	252,536 212,094	188,347 159,513	144,968 123,516	114,494 97,948				
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Forecast of Production and Revenue - Company Share Forecast Prices and Costs as of December 31, 2016 Total Proved, Probable & Possible Reserves

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	Property Gross					Crude O	il		Natural Ga	IS	Natu	ral Gas Li	quids			
Year	No.Of Wells	Crude Oil bbl/d	Natural Gas Mcf/d	NGL bbl/d	Total BOE/d	Annual Volume Mbbl	Sales Price \$/bbl	Sales Revenue M\$	Annual Volume MMcf	Sales Price \$/Mcf	Sales Revenue M\$	Annual Volume Mbbl	Sales Price \$/bbl	Sales Revenue M\$	Other Revenue M\$	Sales Revenue M\$
2017	2.0	1,112	824	-	1,249	406	44.50	18,054	301	1.47	442	-	-	-	-	18,496
2018	2.0	2,256	1,503	-	2,507	824	48.08	39,592	549	1.47	807	-	-	-	-	40,398
2019	3.0	3,000	1,734	-	3,289	1,095	51.54	56,439	633	1.47	931	-	-	-	-	57,370
2020	4.0	3,000	1,734	-	3,289	1,098	58.01	63,690	635	1.47	933	-	-	-	-	64,624
2021	4.0	3,000	1,734	-	3,289	1,095	64.56	70,697	633	1.47	931	-	-	-	-	71,628
2022	4.0	3,000	1,734	-	3,289	1,095	65.82	72,070	633	1.47	931	-	-	-	-	73,000
2023	4.0	3,000	1,734	-	3,289	1,095	67.07	73,437	633	1.47	931	-	-	-	-	74,367
2024	4.0	3,000	1,734	-	3,289	1,098	68.41	75,113	635	1.47	933	-	-	-	-	76,046
2025	4.0	2,711	1,569	-	2,973	990	69.85	69,130	573	1.47	842	-	-	-	-	69,971
2026	4.0	2,214	1,283	-	2,427	808	71.28	57,595	468	1.47	688	-	-	-	-	58,283
2027	4.0	1,812	1,051	-	1,987	661	72.61	48,025	384	1.47	564	-	-	-	-	48,589
2028	4.0	1,487	864	-	1,631	544	74.03	40,289	316	1.47	465	-	-	-	-	40,754
2029	4.0	1,223	712	-	1,342	446	75.65	33,776	260	1.47	382	-	-	-	-	34,158
2030	4.0	1,009	588	-	1,107	368	77.16	28,422	215	1.47	316	-	-	-	-	28,737
2031	4.0	835	487	-	916	305	78.67	23,963	178	1.47	261	-	-	-	-	24,224
Rem.	3.4	374.4	219.5	-	411.0	1,094	84.06	91,987	642	1.47	943	-	-	-	-	92,930
Total	-	-	-	-	-	13,022	66.22	862,279	7,686	1.47	11,298	-	-	-	-	873,577
@10.00%	-	-	-	-	-	-	33.27	433,190	-	0.79	6,100	-	-	-	-	439,290

			F	Royalties						Not	
-	State Ro	oyalty		Other Rov.	T -4			Net Volumes		Interest	Other
Year	Oil M\$	Gas M\$	HPS M\$	& Burdens	100	<u>%</u>	Oil Mbbl	Gas MMcf	Liquids Mbbl	Revenue M\$	Revenue M\$
2017	2 427	60	IΨΨ	inių.	2 407	12.5	251	260	11001	15 000	24
2017	2,437	100			2,497	13.5	710	200	-	10,999	24
2010	7,545	109			7 7 4 5 4	13.5	047	473	-	34,944	93
2019	7,019	120			0 7 2 4	13.5	947	540	-	49,020	100
2020	0,090	120			0,724	13.5	900	549	-	00,099	100
2021	9,544	120		· -	9,670	13.5	947	540	-	01,956	100
2022	9,729	126		· ·	9,855	13.5	947	548	-	63,145	108
2023	9,914	126		· -	10,040	13.5	947	548	-	64,328	108
2024	10,140	126			10,266	13.5	950	549	-	65,780	108
2025	9,333	114			9,446	13.5	856	495	-	60,525	97
2026	7,775	93			7,868	13.5	699	405	-	50,415	80
2027	6,483	76			6,560	13.5	572	332	-	42,030	65
2028	5,439	63			5,502	13.5	471	274	-	35,252	40
2029	4,560	52			4.611	13.5	386	225	-	29,547	14
2030	3 837	43			3,880	13.5	319	186	-	24 858	
2031	3,235	35			3,270	13.5	263	154	-	20,954	-
Rem.	12,418	127			12,546	13.5	947	555	-	80,385	-
Total	116,408	1,525			117,933	13.5	11,264	6,648	-	755,644	1,060
@10.00%	58,481	824			59,304	13.5	-	-	-	379,986	628

			Abd. &			Future N	let Revenue Bef	ore Tax		Afte	r Tax
Year	Operatin M\$	g Costs \$/BOF	Recl. Costs M\$	Net Op. Income M\$	Capital Costs M\$	Annual M\$	Cum. M\$	NPV @10.0% M\$	Taxes Payable M\$	Annual M\$	NPV @10.0% M\$
2017	4 167	9.1/		11 856	7 976	3 880	3 880	3 731	1 117	2 763	2 666
2018	7 3 3 4	8.02		27 704	18,008	9,606	13 576	8 472	2 532	7 165	6 277
2010	0,826	8 10	-	30,006	13 0/0	25.058	30,534	20,255	2,552	22 305	17 446
2019	10 211	8.48	-	45 706	6 701	20,005	78 620	20,233	4 116	22,333	24 854
2020	10,211	8.66		51 671	32	51 630	130 268	27,004	4,110	16 894	24,004
2021	10,394	8.83		52 651	32	52 618	182 886	31 158	4,745	40,034	28 286
2022	10,002	0.03	-	52,001	34	53 587	236 474	28 8/8	5,000	47,700	20,200
2023	11 053	0.18	-	54 835	1 7/3	53,007	230,474	20,040	16.077	37.015	18 120
2024	10.451	9.10	-	50 171	1,745	50,092	209,000	23,303	14 742	25 205	16,120
2020	0.259	9.03	-	41 227	1 459	20,130	339,702	22,344	14,742	33,393	10,704
2020	9,200	10.45	-	41,237	1,400	39,779	379,401	10,120	12,033	27,744	0.010
2027	0,209	11.43	-	33,600	30	33,770	413,251	12,430	9,000	23,904	0,010
2028	7,513	12.59	-	21,119	37	21,142	440,994	9,290	8,103	19,640	6,582
2029	6,863	14.01	-	22,698	38	22,660	463,654	6,898	6,613	16,047	4,888
2030	6,347	15.71	-	18,510	38	18,472	482,126	5,112	5,380	13,092	3,625
2031	5,931	17.75	-	15,023	39	14,984	497,109	3,770	4,349	10,634	2,677
Rem.	34,227	-	1,847	44,310	298	44,013	44,013	8,544	12,635	31,378	6,109
Total	163,281	-	1,847	591,576	50,454	541,122	-	264,407	116,621	424,501	213,591
@10.00%	75,042	-	212	305,360	40,953	264,407	-	-	50,816	213,591	-

	Remaining Reserves									
Product	Gross Lease	W.I.	R.I.	Net						
Light and Medium Oil (Mbbl)	13,022	13,022	-	11,264						
Natural Gas (MMcf)	7,686	7,686	-	6,648						
Total (MBOE)	14,303	14,303	-	12,372						

& Associates Consultants Ltd.

				Net	Present Value	- M\$	
			@ 0.0%	@ 5.0%	@ 10.0%	@ 15.0%	@ 20.0%
RLI Remaining Life Price Schedule	30.79 yrs 22.33 yrs G170101	Before Taxes After Taxes	541,122 424,501	368,631 293,809	264,407 213,591	197,655 161,440	152,797 125,906
				McD	aniel		
7-0030				T			

Maha Energy Tie Field - Brazil Crude Oil Reserve Summary Effective December 31, 2016

Zone	Sergi Main	Agua Grande Main	Agua Grande South	Tie Field Total
Reservoir Parameters				
Porosity, %	15.2	17.3	17.3	
Water Saturation, % Oil Shrinkage frac	36.3 0.74	34.5	34.5	
Original Oil-In Place, bbl/ac-ft	558	633	633	
Proved Developed Producing Reserves				
Area, acres	508	485	-	
Net Pay, ft Net Rock Volume, Acre-ft	42.2 21 440	41.8 20.264	-	
	11 074	10,204	_	24 909
Recovery Factor. %	20.0	12,834	-	24,808
Original Recoverable, Mbbl	2,395	1,604	-	3,999
Cumulative Production, Mbbl	1,014	543	-	1,557
Remaining Recoverable, Mbbi Remaining Sales Gas Recoverable, MMcf	1,380	1,061	-	2,442
Proved Non-Producing Reserves, Mbbl	-	-	-	-
Proved Developed Reserves				
Area, acres	508	485	-	
Net Pay, ft Net Rock Volume, Acre-ft	42.2	41.8	-	
	21,440	20,204	-	04.000
Original Oli in Place, Mbbi Recovery Eactor %	20.0	12,834	-	24,808 16 1
Original Recoverable, Mbbl	2,395	1,604	-	3,999
Cumulative Production, Mbbl	1,014	543	-	1,557
Remaining Recoverable, Mbbl Remaining Sales Gas Recoverable, MMcf	1,380	1,061	-	2,442 1,723
Proved Undeveloped Reserves, Mbbl	2,095	2,888	-	4,983
Total Proved Reserves				
Area, acres	508	485	-	
Net Pay, ft Net Pack Volume, Acro ft	42.2	41.8	-	
	21,440	20,204	-	04.000
Original Oli in Place, Mbbi Recovery Eactor %	11,974 37 5	12,834	-	24,808
Original Recoverable, Mbbl	4,490	4,492	-	8,982
Cumulative Production, Mbbl	1,014	543	-	1,557
Remaining Recoverable, Mbbl Remaining Sales Cas Recoverable, MMcf	3,476	3,949	-	7,425 4 378
Probable Reserves, Mbbl	898	963	-	1,861
Proved + Probable Reserves				
Area, acres	508	485	-	
Net Pay, ft Net Pack Volume, Acre ft	42.2	41.8	-	
	21,440	20,204	-	04.000
Original Oli in Place, Mbbl Recovery Eactor %	11,974	12,834	-	24,808
Original Recoverable. Mbbl	5.388	5.455	-	10.843
Cumulative Production, Mbbl	1,014	543	-	1,557
Remaining Recoverable, Mbbl Remaining Sales Gas Recoverable, MMcf	4,374	4,912	-	9,286 5,458
Possible Reserves, Mbbl	1,197	963	1,869	4,029
Proved + Probable + Possible Reserves				
Area, acres	508	485	149	
Net Pay, ft	42.2	41.8	43.9	
	21,440	20,204	0,000	
Original Oil in Place, Mbbl Recovery Factor %	11,974	12,834	4,154	28,962
Original Recoverable. Mbbl	6.586	6.417	1.869	14.872
Cumulative Production, Mbbl	1,014	543	-	1,557
Remaining Recoverable, Mbbl Remaining Sales Gas Recoverable, MMcf	5,571	5,874	1,869	13,315 7,835



Maha Energy Tie Field - Brazil Reservoir and Fluid Properties Effective December 31, 2016

		Agua
	Sergi	Grande
Imperial Units		
Lithology	Sandstone	Sandstone
Maximum Gross Oil Pay Thickness, ft	75	72
Average Depth to Reservoir, ft	6,660	6,234
Range of Permeability from Well Tests, mD	190-270	NA
Initial Reservoir Pressure, atm	201	198
Initial Reservoir Pressure, psia	2,953	2,910
Bubble Point Pressure, atm	189	172
Bubble Point Pressure, psia	2,778	2,525
Reservoir Temperature, F	206	NA
Stock Tank Oil Density, g/cc	0.830	0.845
Stock Tank Oil Gravity, degrees API	39.0	35.9
Oil Viscosity at Reservoir Pressure, cp	0.67	NA
Solution GOR, scf/bbl	681	NA
Formation Volume Factor, rb/stb	1.35	1.39
Oil Sulphur Content, %	NA	NA
Wax Content, %	NA	NA
Ashphaltenes, %	NA	NA

		Agua
	Sergi	Grande
Metric Units		
Lithology	Sandstone	Sandstone
Maximum Gross Oil Pay Thickness, m	23	22
Average Depth to Reservoir, m	2,030	1,900
Permeability from Well Tests, mD	190-270	NA
Initial Reservoir Pressure, atm	201	198
Initial Reservoir Pressure, Kpa	20,350	20,053
Bubble Point Pressure, atm	189	172
Bubble Point Pressure, kpa	2,778	2,525
Reservoir Temperature, C	97	NA
Stock Tank Oil Density, g/cc	0.830	0.845
Stock Tank Oil Gravity, degrees API	39.0	35.9
Oil Viscosity at Reservoir Pressure, cp	1	NA
Solution GOR, m3/m3	122	NA
Formation Volume Factor, rb/stb	1.35	1.39
Oil Sulphur Content, %	NA	NA
Wax Content, %	NA	NA
Ashphaltenes, %	NA	NA



Maha Energy Tie Field - Brazil Summary of Economic Parameters Effective December 31, 2016

Price Schedule

McDaniel & Associates January 1, 2017 Forecast Price Case

Crude Oil Pricing Adjustments (2017\$ - US)					
Product		Price			
Quality Differential to Brent		\$ 11.50	US/bbl		
Transportation Differential		\$ -	US/bbl		
Gas Pricing Adjustments (2017\$ - US)		Drico			
OMMef/yr < Production < 254MMef/yr		¢ 1.47	LIS/Mcf		
254 MMof/ μ < Production < 218 MMof/ μ r		φ 1.47 ¢ 1.55			
$318MMcf/y \leq Production \leq 370MMcf/yr$		\$ 1.55	US/Mcf		
See Table 8.		φ 1.04			
Operating Costs (2017\$ - US)					
Description	PP Case	1P Case	2P Case	3P Case	
Fixed, \$M/yr					
2017	\$1,912	\$1,912	\$1,912	\$1,912	
2018	\$1,912	\$1,912	\$1,912	\$1,912	
2019	\$1,912	\$1,912	\$1,912	\$1,912	
After 2019	\$1,912	\$1,912	\$1,912	\$1,912	
Variable, \$/w-m					
2017	\$13,284	\$13,284	\$13,284	\$13,284	
2018	\$13,284	\$13,284	\$13,284	\$13,284	
2019	\$13,284	\$13,284	\$13,284	\$13,284	
After 2019	\$13,284	\$13,284	\$13,284	\$13,284	
Variable, \$/bbl - Oil					
2017	\$3.27	\$3.27	\$3.27	\$3.27	
2018	\$3.27	\$3.27	\$3.27	\$3.27	
2019	\$3.27	\$3.27	\$3.27	\$3.27	
After 2019	\$3.27	\$3.27	\$3.27	\$3.27	
Variable, \$/bbl - Water					
2017	\$0.00	\$0.00	\$0.00	\$0.00	
2018	\$0.00	\$0.00	\$0.00	\$0.00	
2019	\$0.00	\$0.00	\$0.00	\$0.00	
After 2019	\$0.00	\$0.00	\$0.00	\$0.00	
Variable, \$/Mcf - Gas					
2017	\$0.00	\$0.00	\$0.00	\$0.00	
2018	\$0.00	\$0.00	\$0.00	\$0.00	
2019	\$0.00	\$0.00	\$0.00	\$0.00	
After 2019	\$0.00	\$0.00	\$0.00	\$0.00	
Variable, \$/bbl Transportation					
2017	\$1.50	\$1.50	\$1.50	\$1.50	
2018	\$1.50	\$1.50	\$2.83	\$2.83	
2019	\$1.50	\$1.50	\$2.83	\$2.83	
After 2019	\$1.50	\$1.50	\$3.25	\$3.25	

* Fixed costs were reduced by 10 percent per year in each of the last three years of the forecast and includes G&A costs of field

Capital Costs (2017\$ - US)

See Table 9.

Abandonment Costs (2017\$ - US) Well Abandonments

\$300,000 /well



Maha Energy Tie Field - Brazil Summary of Economic Parameters Effective December 31, 2016

Interests and Fiscal Terms (2017\$ - US)

Company Working Interest State Oil Royalty (field) Landowner Royalty Effective Combined Royalty Development Capital Depreciation Method 100 percent 11 percent based on reference price set by government 1 percent 13.5 percent Unit of Production Method

Corporate Tax

2015-2024 2024+ 15.25 percent 34 percent

License Expiry Capital Opening Balance as of December 31, 2016 Tax Loss Carryforward (30% of Taxable Income) 34 percent

2039 36 \$MM USD 67 \$MM USD



Maha Energy Tie Field - Brazil Forecast of Capital Costs - 2017\$ Effective December 31, 2016

Proved Producing Reserves

					_		Infrastruct.		Capitalized	Total	Total
	Produc	ction Wells	Injectio	on Wells	Re-con	npletions	& Facilities	Pipelines	Maint.	Area	Area
Year	#	2017 US\$M	#	2017 US\$M	#	2017 US\$M	2017 US\$M	2017 US\$M	2017 US\$M	2017 US\$M	Future US\$M
2017	-	-	-	-	-	-	3,290	-	-	3,290	3,290
2018	-	-	-	-	-	-	625	-	-	625	632
2019	-	-	-	-	-	-	1,250	-	-	1,250	1,290
2020	-	-	-	-	-	-	1,250	-	-	1,250	1,316
2021	-	-	-	-	-	-	-	-	-	-	-
2022	-	-	-	-	-	-	-	-	-	-	-
2023	-	-	-	-	-	-	-	-	-	-	-
2024	-	-	-	-	-	-	-	-	-	-	-
2025	-	-	-	-	-	-	-	-	-	-	-
2026	-	-	-	-	-	-	-	-	-	-	-
2027	-	-	-	-	-	-	-	-	-	-	-
2028	-	-	-	-	-	-	-	-	-	-	-
2029	-	-	-	-	-	-	-	-	-	-	-
2030	-	-	-	-	-	-	-	-	-	-	-
2031	-	-	-	-	-	-	-	-	-	-	-
2032	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	6,415	-	-	6,415	6,528

Individual Cost \$M

Proved Developed Reserves

	Produc	ction Wells	Injecti	ion Wells	<u>Re-cor</u>	npletions	Infrastruct. & Facilities	Pipelines	Capitalized Maint.	Total Area	Total Area
Year	#	2017 US\$M	#	2017 US\$M	#	2017 US\$M	2017 US\$M	2017 US\$M	2017 US\$M	2017 US\$M	Future US\$M
2017	-	-	-	-	-	-	3,290	-	-	3,290	3,290
2018	-	-	-	-	-	-	625	-	-	625	632
2019	-	-	-	-	-	-	1,250	-	-	1,250	1,290
2020	-	-	-	-	-	-	1,250	-	-	1,250	1,316
2021	-	-	-	-	-	-	-	-	-	-	-
2022	-	-	-	-	-	-	-	-	-	-	-
2023	-	-	-	-	-	-	-	-	-	-	-
2024	-	-	-	-	-	-	-	-	-	-	-
2025	-	-	-	-	-	-	-	-	-	-	-
2026	-	-	-	-	-	-	-	-	-	-	-
2027	-	-	-	-	-	-	-	-	-	-	-
2028	-	-	-	-	-	-	-	-	-	-	-
2029	-	-	-	-	-	-	-	-	-	-	-
2030	-	-	-	-	-	-	-	-	-	-	-
2031	-	-	-	-	-	-	-	-	-	-	-
2032	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	6,415	-	-	6,415	6,528

Individual Cost \$M

Total Proved Reserves

	Production Wells		Injection Wells		Re-com	Re-completions		Pipelines	Capitalized Maint.	Total Area	Total Area
Year	#	2017 US\$M	#	2017 US\$M	#	2017 US\$M	2017 US\$M	2017 US\$M	2017 US\$M	2017 US\$M	Future US\$N
2017	-	-	-	-	-	-	5,020	-	-	5,020	5,020
2018	-	1,100	-	-	-	-	5,655	-	-	6,755	6,833
2019	1	6,400	-	-	-	-	1,280	-	-	7,680	7,860
2020	-	-	-	-	-	-	1,280	-	-	1,280	1,347
2021	-	-	-	-	-	-	30	-	-	30	32
2022	-	-	-	-	-	-	30	-	-	30	33
2023	-	-	-	-	-	-	30	-	-	30	34
2024	-	-	-	-	-	-	30	-	-	30	34
2025	-	-	-	-	-	-	30	-	-	30	35
2026	-	-	1	1,200	-	-	30	-	-	1,230	1,458
2027	-	-	-	-	-	-	30	-	-	30	36
2028	-	-	-	-	-	-	30	-	-	30	37
2029	-	-	-	-	-	-	30	-	-	30	38
2030	-	-	-	-	-	-	30	-	-	30	38
2031	-	-	-	-	-	-	30	-	-	30	39
2032	-	-	-	-	1	1,500	30	-	-	1,530	2,300
Total	1	7,500	1	1,200	1	1,500	13,595	-	-	23,795	25,174
ndividual Cost	\$M			6		1,500	-1				



Maha Energy Tie Field - Brazil Forecast of Capital Costs - 2017\$ Effective December 31, 2016

Total Proved + Probable Reserves

	Draduat	tion Walls	Inicatio		De com	nlationa	Infrastruct.	Dinelines	Capitalized	Total	Total	
	Product	tion vvelis			Re-completions		& Facilities	Pipelines	Maint.	Area	Area	
Year	#	2017 US\$M	#	2017 US\$M	#	2017 US\$M	2017 US\$M	2017 US\$M	2017 US\$M	2017 US\$M	Future US\$M	
2017	-	-	-	-	-	-	7,925	-	-	7,925	7,925	
2018	-	1,100	-	-	-	-	16,831	-	-	17,931	18,139	
2019	1	6,400	-	-	-	-	7,181	-	-	13,581	13,949	
2020	-	-	-	-	-	-	30	-	-	30	32	
2021	-	-	-	-	-	-	30	-	-	30	32	
2022	-	-	-	-	-	-	30	-	-	30	33	
2023	-	-	-	-	1	1,500	30	-	-	1,530	1,709	
2024	-	-	-	-	-	-	30	-	-	30	34	
2025	-	-	-	-	-	-	30	-	-	30	35	
2026	-	-	-	-	-	-	30	-	-	30	36	
2027	-	-	1	1,200	-	-	30	-	-	1,230	1,487	
2028	-	-	-	-	-	-	30	-	-	30	37	
2029	-	-	-	-	-	-	30	-	-	30	38	
2030	-	-	-	-	-	-	30	-	-	30	38	
2031	-	-	-	-	-	-	30	-	-	30	39	
2032	-	-	-	-	-	-	30	-	-	30	298	
Total	1	7,500	1	1,200	1	1,500	32,327	-	-	42,527	43,860	
Individual Cost	\$M					1,500						

Total Proved + Probable + Possible Reserves

	Production Wells		Injection Wells		Re-completions		& Facilities	Pipelines	Maint.	Area	Area
Year	#	2017 US\$M	#	2017 US\$M	#	2017 US\$M	2017 US\$M	2017 US\$M	2017 US\$M	2017 US\$M	Future US\$M
2017	-	-	-	-	-	-	7,976	-	-	7,976	7,976
2018	-	1,100	-	5,000	-	-	11,701	-	-	17,801	18,008
2019	1	6,400	-	-	-	-	30	-	-	6,430	13,949
2020	1	6,400	-	-	-	-	30	-	-	6,430	6,701
2021	-	-	-	-	-	-	30	-	-	30	32
2022	-	-	-	-	-	-	30	-	-	30	33
2023	-	-	-	-	-	-	30	-	-	30	34
2024	-	-	-	-	1	1,500	30	-	-	1,530	1,743
2025	-	-	-	-	-	-	30	-	-	30	35
2026	-	-	1	1,200	-	-	30	-	-	1,230	1,458
2027	-	-	-	-	-	-	30	-	-	30	36
2028	-	-	-	-	-	-	30	-	-	30	37
2029	-	-	-	-	-	-	30	-	-	30	38
2030	-	-	-	-	-	-	30	-	-	30	38
2031	-	-	-	-	-	-	30	-	-	30	39
2032	-	-	-	-	-	-	30	-	-	30	298
Total	2	13,900	1	6,200	1	1,500	20,097	-	-	41,697	50,454

Individual Cost \$M

1,500



McDaniel & Associates Consultants Ltd.

Summary of Crude Oil and Natural Gas Liquids Price Forecasts

January 1, 2017

Year	WTI Crude Oil \$US/bbl	Brent Crude Oil \$US/bbl	Edmonton Light Crude Oil \$C/bbl	Alberta Bow River Hardisty Crude Oil \$C/bbl	Western Canadian Select Crude Oil \$C/bbl	Alberta Heavy Crude Oil \$C/bbl	Sask Cromer Medium Crude Oil \$C/bbl	Edmonton Cond. & Natural Gasolines \$/bbl	Edmonton Ethane \$/bbl	Edmonton Propane \$/bbl	Edmonton Butanes \$/bbl	Inflation %	US/CAN Exchange Rate \$US/\$CAN
	(1)	(2)	(3)	(4)	(5)	(6)	(7)						
History													
1987	19.30		24.30	20.79				23.80		9.98	16.80		0.755
1988	16.00		18.70	14.41				18.30		8.19	12.95		0.812
1989	19.60		22.20	18.09				21.80		8.14	10.35		0.844
1990	24.50		27.60	21.06		16.00		27.00		13.67	16.21		0.857
1991	21.40		23.40	15.07		9.05		22.90		11.91	15.25		0.873
1992	20.55		23.50	17.52		12.95		23.00		10.55	14.05		0.828
1993	18.60		21.90	16.70		13.30		21.50		14.10	13.55		0.775
1994	17.20		22.20	18.43		15.00		21.75		12.50	13.45		0.732
1995	18.45		24.25	20.80		17.25		23.76		13.90	13.80		0.729
1996	22 10		29.35	25 11		20.05		28 75		22 20	17 15		0 733
1997	20.55	19.09	27.80	21.22		14.40		31.10		18.60	19.05		0.722
1998	14.40	12.77	20.35	14.60		9.40	17.00	21.85		10.95	11.90		0.687
1999	19.25	17.86	27.60	23.35		19.65	25.47	27.60		15.45	17.73		0.673
2000	30.31	28.40	44.72	34.35		27.80	40.10	46.25		31.55	35.00		0.674
2001	25 97	24 42	39.60	25.07		18.05	32.22	42 44		29 15	28 45		0.646
2002	26.10	24.95	39.95	31.65		27.60	34.93	40.79		19.85	26.10		0.637
2003	31.05	28.85	43.15	32.68		27.40	37.57	44.19		30.15	33.45		0.716
2004	41.40	38.30	52.54	37.60	36.14	30.40	45.94	54.09		33.28	39.45		0.770
2005	56.56	54.48	68.72	44.83	44.60	34.35	57.47	69.63		43.29	52.58		0.826
2006	66 23	65 20	72 80	51 55	51 22	43 14	61 25	75.06		44 05	60 10		0.880
2000	72 30	72 80	76.35	53 25	52.90	44 63	65 40	77.36	NA	49.45	63 75		0.935
2008	99.60	97.80	102.20	84.30	82.94	75.55	93.20	104.75	NA	58.40	75.25		0.943
2009	61.80	61.60	65.90	60.30	58.58	55.30	62.80	68.15	NA	38.60	49.25		0.880
2010	79.50	79.90	77.50	68.50	67.23	61.45	73.80	84.25	NA	46.70	66.05		0.971
2011	95 10	111 25	95.00	78 55	77 10	67 90	88 90	104 20	NΔ	55 15	76 50		1 012
2011	94 20	111.25	86 10	74.35	73.08	63.65	82 10	100.80	NA	28.60	69.55		1.012
2013	97.95	108.60	93.05	76.55	75.25	65.25	88.25	104.65	NA	38.90	69.40		0.971
2014	93.00	99.00	93.50	80.40	79.10	71.20	87.80	102.40	NA	45.05	69.60		0.906
2015	48.80	52.35	57.75	46.10	44.80	39.55	51.45	60.30	NA	6.65	35.55		0.780
2016	43 30	43 70	53 80	40.30	39.05	33 35	48 95	56 15	NA	13.05	33.80		0 760
Faragat	10.00	10.70	00.00	10.00	00.00	00.00	10.00	00.10		10.00	00.00		0.700
2017	55.00	56.00	60.80	54.40	53 70	46 50	62.80	72.90	12.90	22.30	43 50	0.0	0 750
2017	58 70	59.70	72 70	58.90	58.20	40.50 50.50	67.60	75.80	12.00	23.30	43.30	2.0	0.750
2018	62 40	63.40	75.50	62 70	61 90	54.00	70.20	78.60	12.40	26.20	49.80	2.0	0.800
2020	69.00	70 10	81 10	67.30	66 50	58.00	75.40	84 30	13 60	28.30	56 40	2.0	0.825
2020	75.00	76.00	96.60	71.00	74.00	61.00	00.50	00.00	14.00	20.00	62.40	2.0	0.050
2021	75.80	76.90	80.00	71.90	71.00	63.10	80.50	89.80	14.80	30.30	64.70	2.0	0.850
2022	78.80	70.40	90.00	73.30	72.40	64.40	83 70	91.00	15.00	31.50	65.90	2.0	0.850
2023	80.40	81 50	91.80	76.20	75.00	65.60	85.40	95.40	16.00	32.20	67 30	2.0	0.850
2024	82.00	83.20	93 70	77.80	76.80	67.00	87 10	97.20	16.00	32.20	68.60	2.0	0.850
2020	02.00	04.00	05.00	70.00	70.40	60.40	00.00	00.00	10.20	02.00	70.00	2.0	0.000
2026	83.70	84.90	95.60	79.30	78.40	60.40	88.90	99.20	10.60	33.60	70.00	2.0	0.850
2027	00.3U	00.50	97.40	0U.8U	19.90	09.00 71.10	90.60	101.10	17.00	34.2U	72 00	2.0	0.050
2020	07.00	00.20 90.10	99.40 101.40	62.00 84.20	83.10	72.50	92.40	105.10	17.40	35.60	74.30	2.0	0.650
2029	90.60	90.10 Q1 Q0	103.50	85 QN	84 90	74 00	96 30	107.20	18.00	36 30	75.80	2.0	0.000
2000	00.40	00.70	105.50	07.00	04.50	7 - 40	00.00	100.50	10.00	00.00	77.00	2.0	0.050
2031	92.40	93.70	105.50	87.60	80.50	75.40	98.10	109.50	18.40	37.10	11.30	2.0	0.850
Thereafter	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	+2%/yr	2.0	0.850

(1) West Texas Intermediate at Cushing Oklahoma 40 degrees API/0.5% sulphur

(2) North Sea Brent Blend 37 degrees API/1.0% sulphur

(3) Edmonton Light Sweet 40 degrees API, 0.3% sulphur
(4) Bow River at Hardisty, Alberta (Heavy stream)
(5) Western Canadian Select at Hardisty, Alberta

(6) Heavy crude oil 12 degrees API at Hardisty, Alberta (after deduction of blending costs to reach pipeline quality

(7) Midale Cromer crude oil 29 degrees API, 2.0% sulphur

G170101 - Effective January 1, 2017







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