

## SUPPLEMENTARY TARGET'S STATEMENT

By Tap Oil Limited ABN 89 068 572 341

In response to the Offer made by Risco Energy Investments (SEA) Limited.

The Non-Affiliated Directors unanimously recommend that you

# **X REJECT**

the Offer made by Risco Energy Investments (SEA) Limited to acquire all of your shares in Tap Oil for just \$0.070 per share

THIS IS AN IMPORTANT DOCUMENT AND REQUIRES YOUR IMMEDIATE ATTENTION. YOU SHOULD READ THE DOCUMENT IN ITS ENTIRETY. IF YOU ARE IN DOUBT AS TO WHAT YOU SHOULD DO, YOU SHOULD CONSULT YOUR INVESTMENT, FINANCIAL, TAXATION OR OTHER PROFESSIONAL ADVISER.

IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT TAP OIL'S COMPANY SECRETARY ON +61 8 9485 1000 BETWEEN 9.00AM AND 5.00PM (PERTH TIME) MONDAY TO FRIDAY.

**Financial Adviser** 



Legal Adviser



## SUPPLEMENTARY TARGET'S STATEMENT

Pursuant to section 644 of the Corporations Act 2001 (Cth), this first Supplementary Target's Statement dated 11 July 2018 (**Supplementary Target's Statement**) has been prepared by Tap Oil Limited (ABN 89 068 572 341) (**Tap Oil**).

The Supplementary Target's Statement supplements, and should be read together with, Tap Oil's Target's Statement dated 15 May 2018 in relation to the on-market cash takeover offer by Risco Energy Investments (SEA) Limited (**Risco**) to acquire all of the shares in Tap Oil (**Offer**).

## **IMPORTANT NOTICES**

This Supplementary Target's Statement has been lodged with ASIC on 11 July 2018 and provided to the ASX. Neither ASIC, ASX nor any of their respective officers take any responsibility for the content of this document.

It is important that you read the Target's Statement and this Supplementary Target's Statement in their entirety before making any investment decision and any decision relating to the Offer. Your Directors encourage you to obtain independent advice from your investment, financial, taxation or other professional adviser before making a decision whether or not to accept the Offer.

The Independent Expert's Report has been prepared by the Independent Expert, BDO Corporate Finance (WA) Pty Ltd (**BDO** or the **Independent Expert**) for the purposes of this Supplementary Target's Statement and the Independent Expert is responsible for that report. Neither Tap Oil nor any of its officers, employees or advisers assumes any responsibility for the accuracy or completeness of the Independent Expert's Report except, in the case of Tap Oil, in relation to any information which it has provided to the Independent Expert.

The Independent Expert's Report attaches a Technical Specialist's Report that has been prepared by the Technical Specialist, RISC Advisory Pty Ltd (**RISC** or the **Technical Specialist**) in connection with the preparation of the Independent Expert's Report, and the Technical Specialist is responsible for that report. Neither Tap Oil nor any of its officers, employees or advisers assumes any responsibility for the accuracy or completeness of the Technical Specialist's Report except, in the case of Tap Oil, in relation to information which it has provided to the Technical Specialist.

Capitalised terms used in this Supplementary Target's Statement have the same meaning as defined in Section 9 of the Target's Statement unless otherwise defined. Terms relating to petroleum reserves and petroleum resources (including Reserves and Contingent Resources) have the same meaning as given to those terms in the Technical Specialist's Report.

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## **KEY DATES**

Announcement date of the Offer	2 May 2018
Risco's appointed broker commences standing in the market	2 May 2018
Date of Bidder's Statement	2 May 2018
Date of Target's Statement	15 May 2018
Date of Supplementary Bidder's Statement	16 May 2018
Date of this Supplementary Target's Statement	11 July 2018
Scheduled close of Offer Period (unless extended or withdrawn)	Close of ASX trading on 19 July 2018

Note: The Offer may only be withdrawn in exceptional circumstances in accordance with the Corporations Act as summarised in Section 5.5 of the Target's Statement.

## TO REJECT THE OFFER, SIMPLY DO NOTHING

## 1. THE NON-AFFILIATED DIRECTORS CONTINUE TO UNANIMOUSLY RECOMMEND THAT YOU REJECT THE OFFER

The Non-Affiliated Directors continue to unanimously recommend that you **REJECT** the Offer by **DOING NOTHING** and **TAKING NO ACTION** with respect to your Tap Oil Shares, for the reasons set out in Section 1 of the Target's Statement and supplemented by the reasons outlined below in this Supplementary Target's Statement.

If you have any questions, please call Tap Oil's Company Secretary on +61 8 9485 1000 between 9.00am and 5.00pm (Perth time) Monday to Friday.

## 2. INDEPENDENT EXPERT'S REPORT

The Independent Board Committee appointed BDO to prepare an Independent Expert's Report opining on whether the Offer is fair and reasonable to Tap Oil Shareholders.

BDO has now provided Tap Oil with its Independent Expert's Report, which concludes that the Offer is **NEITHER FAIR NOR REASONABLE** and that the Offer of \$0.070 per share falls below the bottom end of BDO's assessed valuation range for Tap Oil Shares.

The Independent Expert has determined the value of a Tap Oil Share on a controlling interest basis to be in the range of \$0.079 to \$0.120 per share, with a preferred value of \$0.091 per share.

A copy of the Independent Expert's Report is attached as Appendix 1.



Figure 1. Independent Expert's assessed value range compared to the Offer Price

As part of the preparation of the Independent Expert's Report, RISC was engaged as a technical expert to prepare a Technical Specialist's Report. The Technical Specialist's Report provides detailed information about the Manora Oil Field and Tap Oil's exploration assets. A copy of the Technical Specialist's Report is attached as Appendix 4 to the Independent Expert's Report.

## **3. DRILLING CAMPAIGN UPDATE**

On 20 May 2018, the operator of the Manora Oil Field began a four-well exploration, appraisal and development drilling campaign. On 20 June 2018, Tap Oil announced the completion of the final well in the drilling campaign with a total net pay of ~636 feet penetrated from both known and new sands.

Manora-8ST1, MNA-20 and MNA-21 were all successful in appraising their primary objectives, with the Manora-8 exploration well requiring further analysis to understand the implications of the findings. New discoveries were made by the Manora-8ST1 appraisal well in the 300 and 500 series sands, which was further developed by the MNA-20 development well.

The Manora-8ST1 appraisal well commenced drilling on or around 28 May 2018 and reached final total depth of 2,458 metres Measured Depth Rotary Table (**MDRT**) on 30 May 2018. Multiple oil bearing zones were encountered with total net pay of 307 feet. The main objective 490-60 sand is well developed with 86 feet pay, similar to the MNA-18 well. Other 400 sands encountered 7 feet pay.

The new oil discoveries from the Manora-8ST1 well were made in the 300 and 500 series sands, which encountered 106 feet pay and 108 feet pay respectively. Good porosity, pressure and permeability were encountered in the new sands. The 500 sands are considered to be new Reserves and the 300 sands new Contingent Resources in the Manora Oil Field. The revised Resource estimate by RISC (shown in Appendix 4 of the Independent Expert's Report) declared an increase in 2C Contingent Resources net to Tap Oil to 0.6MMstb.

Following completion of the Manora-8ST1, the rig moved to the Manora Oil Field platform to commence the MNA-20 and MNA-21 development wells. The MNA-20 and MNA-21 wells showed initial combined test rates of ~3,000 bopd gross, with expected production of ~2,500 bopd gross to take total field production to ~8,300 bopd, representing a significant increase in field production (~6,000 bopd in June 2018). The positive results from the 500 series sands, where petrophysical interpretation of well logs show 169 feet net pay, will be completed along with the 490-60 sands by the MNA-20 infill well.









For additional information on the drilling program and well results refer to the ASX announcements released by Tap Oil on 28 May, 4 June, 13 June and 20 June 2018 (refer Appendix 2 for a list of announcements since Tap Oil's last Annual Report).

## 4. AUSTRALIAN PORTFOLIO UPDATE

Tap Oil is actively executing its strategy to rationalise the Australian portfolio.

On 26 June 2018, Tap Oil announced that it had completed the sale of its interest in production licence TP/7 and exploration permit TL/2 and associated pipeline licences, effective 18 June 2018. The TL/2 production licence and the TP/7 exploration permit are located in shallow water in the offshore Carnarvon Basin approximately 40 kilometres north-northeast of Onslow, Western Australia. Effective from the sale date, the purchaser has agreed to assume all environmental and remediation liabilities associated with these permits, regardless of when the operations that gave rise to such liabilities may have occurred.

## **5. EXTENSION OF THE OFFER**

On 22 June 2018, Risco announced an extension to the Offer such that it is now scheduled to close at the end of ASX trading (approximately 2.00pm Perth time) on 19 July 2018 (unless further extended or withdrawn in exceptional circumstances).

For further information about the Offer, refer to Section 5 of the Target's Statement.

## 6. RESULTS OF THE ANNUAL GENERAL MEETING

The results of Tap Oil's Annual General Meeting held on 25 May 2018 are summarised in the table below.

#	Resolution	Outcome
1	Adoption of Remuneration Report	Carried
2	Election of Mr Chris Newton as a Director	Not Carried
3	Election of Dr Govert van Ek as a Director	Carried
4	Election of Mr Kamarudin Baba as a Director	Carried
5	Election of Mr Damon Neaves as a Director	Carried

As a result of Resolution 2 not being carried, Risco nominee director Mr Chris Newton ceased to be a Director and the Chairman of Tap Oil at the close of the AGM on 25 May 2018. On 29 May 2018, Tap Oil announced that Independent Non-Executive Director, Mr Damon Neaves, had been appointed as Chairman of Tap Oil.

## 7. CONSENTS

The following persons have given and have not, before the date of issue of this Supplementary Target's Statement, withdrawn their consent to:

- be named in this Supplementary Target's Statement in the form and context in which they are named;
- the inclusion of their respective reports or statements noted next to their names and the references to those reports or statements in the form and context in which they are included in this Supplementary Target's Statement; and
- the inclusion of other statements in this Supplementary Target's Statement that are based on or referable to statements made in those reports or statements, or that are based on or referable to other statements made by those persons in the form and context in which they are included.

Name of person	Named as	<b>Reports or Statements</b>
Each Director	a Director	The inclusion of statements made by them
Azure Capital Limited	Financial Adviser	N/A
Corrs Chambers Westgarth	Legal Adviser	N/A
BDO	Independent Expert	Independent Expert's Report
RISC	Technical Specialist	Technical Specialist's Report

Each of the above persons:

- does not make, or purport to make, any statement in this Supplementary Target's Statement other than those statements referred to above and as consented to by that person; and
- to the maximum extent permitted by law, expressly disclaims and takes no responsibility for any part of this Supplementary Target's Statement other than as described in this section with the person's consent.

As permitted by ASIC Class Order 13/521, this Supplementary Target's Statement contains statements that are made, or based on statements made, in documents lodged with ASIC or ASX (in compliance with the Listing Rules). Pursuant to this Class Order, the consent of persons to whom such statements are attributed is not required for the inclusion of those statements in this Supplementary Target's Statement.

Any Tap Oil Shareholder who would like to receive a copy of any of the documents (or parts of the documents) that contain the statements which have been included pursuant to ASIC Class Order 13/521 may during the Offer Period obtain a copy free of charge by contacting Tap Oil's Company Secretary on +61 8 9485 1000 between 9:00am and 5:00pm (Perth time) on Monday to Friday.

Additionally, as permitted by ASIC Class Order 13/523, this Supplementary Target's Statement may include or be accompanied by certain statements:

- fairly representing a statement by an official person; or
- from a public official document or published book, journal or comparable publication.

Pursuant to that Class Order, the consent of persons to whom such statements are attributed is not required for inclusion of those statements in this Supplementary Target's Statement.

## 8. AUTHORISATION

This Supplementary Target's Statement has been approved by a resolution passed by the Directors of Tap Oil.

Dated 11 July 2018.

Signed for and on behalf of Tap Oil:

Damon Neaves
Independent Chairman and Chairman of the Independent Board Committee

## **APPENDIX 1. INDEPENDENT EXPERT'S REPORT**

## TAP OIL LIMITED Independent Expert's Report

10 July 2018









#### Financial Services Guide

10 July 2018

**BDO Corporate Finance (WA) Pty Ltd** ABN 27 124 031 045 (**'we'** or **'us'** or **'ours'** as appropriate) has been engaged by the independent directors of Tap Oil Limited (**'Tap Oil'** or the **'Company'**) to provide an independent expert's report on the unconditional on-market takeover bid by Risco Energy Investments (SEA) Limited (**'Risco'**) for all the ordinary shares in Tap Oil that it does not already hold (**'Offer'**). You will be provided with a copy of our report as a retail client because you are a shareholder of Tap Oil.

#### Financial Services Guide

In the above circumstances we are required to issue to you, as a retail client, a Financial Services Guide (**'FSG'**). This FSG is designed to help retail clients make a decision as to their use of the general financial product advice and to ensure that we comply with our obligations as financial services licensees.

This FSG includes information about:

- Who we are and how we can be contacted;
- The services we are authorised to provide under our Australian Financial Services Licence, Licence No. 316158;
- Remuneration that we and/or our staff and any associates receive in connection with the general financial product advice;
- Any relevant associations or relationships we have; and
- Our internal and external complaints handling procedures and how you may access them.

#### Information about us

BDO Corporate Finance (WA) Pty Ltd is a member firm of the BDO network in Australia, a national association of separate entities (each of which has appointed BDO (Australia) Limited ACN 050 110 275 to represent it in BDO International). The financial product advice in our report is provided by BDO Corporate Finance (WA) Pty Ltd and not by BDO or its related entities. BDO and its related entities provide services primarily in the areas of audit, tax, consulting and financial advisory services.

We do not have any formal associations or relationships with any entities that are issuers of financial products. However, you should note that we and BDO (and its related entities) might from time to time provide professional services to financial product issuers in the ordinary course of business.

#### Financial services we are licensed to provide

We hold an Australian Financial Services Licence that authorises us to provide general financial product advice for securities to retail and wholesale clients.

When we provide the authorised financial services we are engaged to provide expert reports in connection with the financial product of another person. Our reports indicate who has engaged us and the nature of the report we have been engaged to provide. When we provide the authorised services we are not acting for you.

#### General Financial Product Advice

We only provide general financial product advice, not personal financial product advice. Our report does not take into account your personal objectives, financial situation or needs. You should consider the appropriateness of this general advice having regard to your own objectives, financial situation and needs before you act on the advice.



## **Financial Services Guide**

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#### Fees, commissions and other benefits that we may receive

We charge fees for providing reports, including this report. These fees are negotiated and agreed with the person who engages us to provide the report. Fees are agreed on an hourly basis or as a fixed amount depending on the terms of the agreement. The fee payable to BDO Corporate Finance (WA) Pty Ltd for this engagement is approximately \$60,000.

Except for the fees referred to above, neither BDO, nor any of its directors, employees or related entities, receive any pecuniary benefit or other benefit, directly or indirectly, for or in connection with the provision of the report.

**Other Assignments** - BDO Advisory (WA) Pty Ltd, a company related to BDO Corporate Finance (WA) Pty Ltd has prepared three valuations of performance rights for Tap Oil over the past two years for a total fee of approximately \$9,500.

#### Remuneration or other benefits received by our employees

All our employees receive a salary. Our employees are eligible for bonuses based on overall productivity but not directly in connection with any engagement for the provision of a report. We have received a fee from Tap Oil for our professional services in providing this report. That fee is not linked in any way with our opinion as expressed in this report.

#### Referrals

We do not pay commissions or provide any other benefits to any person for referring customers to us in connection with the reports that we are licensed to provide.

#### **Complaints resolution**

Internal complaints resolution process

As the holder of an Australian Financial Services Licence, we are required to have a system for handling complaints from persons to whom we provide financial product advice. All complaints must be in writing addressed to The Complaints Officer, BDO Corporate Finance (WA) Pty Ltd, PO Box 700 West Perth WA 6872.

When we receive a written complaint we will record the complaint, acknowledge receipt of the complaint within 15 days and investigate the issues raised. As soon as practical, and not more than **45 days** after receiving the written complaint, we will advise the complainant in writing of our determination.

#### **Referral to External Dispute Resolution Scheme**

A complainant not satisfied with the outcome of the above process, or our determination, has the right to refer the matter to the Financial Ombudsman Service (**'FOS'**). FOS is an independent organisation that has been established to provide free advice and assistance to consumers to help in resolving complaints relating to the financial service industry. FOS will be able to advise you as to whether or not they can be of assistance in this matter. Our FOS Membership Number is 12561. Further details about FOS are available at the FOS website <u>www.fos.org.au</u> or by contacting them directly via the details set out below.

Financial Ombudsman Service GPO Box 3 Melbourne VIC 3001 Free call: 1800 367 287 Facsimile: (03) 9613 6399 Email: info@fos.org.au

Contact details

You may contact us using the details set out on page 1 of the accompanying report.

**BDO** 

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Appendix 1 - Glossary and copyright notice

Appendix 2 - Valuation Methodologies

Appendix 3 - Discount Rate Assessment

Appendix 4 - Independent Technical Assessment and Valuation Report prepared by RISC Advisory

 $\ensuremath{\mathbb{C}}$  2018 BDO Corporate Finance (WA) Pty Ltd



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10 July 2018

The Independent Directors Tap Oil Limited Level 2 190 St Georges Terrace PERTH WA 6000

Dear Directors

## **INDEPENDENT EXPERT'S REPORT**

### 1. Introduction

On 2 May 2018 Risco Energy Investments (SEA) Limited ('**Risco**') announced its intention to acquire all of the ordinary shares in Tap Oil Limited ('**Tap Oil**') that it does not already own through an unconditional on-market all cash takeover offer of \$0.07 per share ('**Offer**').

On 2 May 2018, Tap Oil received the Bidder's Statement from Risco in relation to the Offer ('**Bidder's Statement**'). The Offer period commenced on 17 May 2018 and it was stated in the Bidder's Statement that the Offer would end at the close of trading on 18 June 2018, unless withdrawn or extended.

On 16 May 2018, Risco gave notice that it had replaced the Bidder's Statement with a Supplementary Bidder's Statement ('Supplementary Bidder's Statement'), under which the Offer period was extended to end at close of trading on 4 July 2018 and on 22 June 2018, Risco further extended the Offer period to 19 July 2018. As on-market takeover offers must be unconditional, the Offer is not subject to any defeating conditions (including any minimum acceptance condition).

All currencies in this report are expressed in Australian Dollars ('\$A') unless otherwise specified.

## 2. Summary and Opinion

#### 2.1 Requirement for the report

The independent directors of Tap Oil, being Mr Damon Neaves and Mr Govert van Ek ('Independent Directors') have requested that BDO Corporate Finance (WA) Pty Ltd ('BDO') prepare an independent expert's report ('our Report' or 'this Report') to express an opinion as to whether or not the Offer is fair and reasonable to the shareholders of Tap Oil ('Shareholders').

Although there is no legal requirement for an independent expert's report pursuant to section 640 of the Corporations Act 2001 (Cth) ('**Corporations Act'** or '**the Act'**), the Independent Directors of Tap Oil have requested that BDO prepare this Report as if it were an independent expert's report pursuant to section 640 of the Corporations Act, and to provide an opinion on whether the Offer is fair and reasonable to Shareholders.

BDO Corporate Finance (WA) Pty Ltd ABN 27 124 031 045 AFS Licence No 316158 is a member of a national association of independent entities which are all members of BDO (Australia) Ltd ABN 77 050 110 275, an Australian company limited by guarantee. BDO Corporate Finance (WA) Pty Ltd and BDO (Australia) Ltd are members of BDO International Ltd, a UK company limited by guarantee, and form part of the international BDO network of independent member firms. Liability limited by a scheme approved under Professional Standards Legislation (other than for the acts or omissions of financial services licensees) in each State or Territory other than Tasmania.



Our Report is to be included in a Supplementary Target's Statement from Tap Oil dated on or about the date of this Report ('**Supplementary Target's Statement**') in order to assist the Shareholders in their decision whether to accept the Offer.

#### 2.2 Approach

Our Report has been prepared having regard to Australian Securities and Investments Commission ('ASIC') Regulatory Guide 111 'Content of Expert's Reports' ('RG 111') and Regulatory Guide 112 'Independence of Experts' ('RG 112').

In arriving at our opinion, we have assessed the terms of the Offer as outlined in the Bidder's Statement and Supplementary Bidder's Statement and in the body of this Report. We have considered:

- How the value of a Tap Oil share prior to the Offer on a control basis compares to the value of the Offer Consideration, being \$0.07 per Tap Oil share ('**Offer Consideration**');
- The likelihood of an alternative offer being made to Tap Oil;
- Other factors which we consider to be relevant to the Shareholders in their assessment of the Offer; and
- The position of Shareholders should the Offer not be successful.

#### 2.3 Opinion

We have considered the terms of the Offer as outlined in the body of this Report and have concluded that, in the absence of an alternative offer, the Offer is neither fair nor reasonable to Shareholders.

We consider that the Offer is not fair as the value range for a Tap Oil share, on a control basis, is greater than the Offer Consideration. We consider that the Offer is not reasonable due to the disadvantages of the Offer outweighing the advantages.

#### 2.4 Fairness

In section 12 we determined that the Offer Consideration compares to the value of a Tap Oil share as detailed below.

	Ref	Low	Preferred	High
Value of a Tap Oil share on a control basis		\$0.079	\$0.091	\$0.120
Offer Consideration		\$0.070	\$0.070	\$0.070

Source: BDO analysis



The above valuation ranges are graphically presented below:

#### Valuation Summary



The above pricing indicates that, in the absence of any other relevant information, and an alternative offer, the Offer is not fair for Shareholders.

#### 2.5 Reasonableness

We have considered the analysis in section 13 of this Report, in terms of both:

- advantages and disadvantages of the Offer; and
- other considerations, including the practical level of control that Risco may acquire as a result of Shareholders accepting the Offer.

In our opinion, the position of Shareholders if the Offer is successful is less advantageous than the position if the Offer is not successful. Accordingly, in the absence of any other relevant information and/or an alternate proposal we believe that the Offer is not reasonable for Shareholders.

The respective advantages and disadvantages considered are summarised below:

ADVANTAGES AND DISADVANTAGES Section Advantages Section Disadvantages					
13.1.1	The Offer provides Shareholders with an opportunity to realise their investment with certainty	13.2.1	Shareholders will be unable to participate in the potential upside from the Company's operations		
13.1.2	The Offer is not subject to any minimum defeating conditions	13.2.2	The Offer price is at a discount to the Company's recently traded prices		
13.1.3	The Offer is at a premium to the Company's last traded price prior to the announcement of the Offer	13.2.3	Shareholders may face potential tax implications from selling their shares in response to the Offer		
13.1.4	Shareholders will no longer be exposed to risks associated with being an investor in Tap Oil				



Section	Consequences of not accepting the Offer
13.3.1	Shareholders who reject the Offer could become minority shareholders in a company in which Risco would have a controlling interest or otherwise have acquired practical control
13.3.2	Franking credits may have value for particular shareholders depending on their tax situation

Other key matters we have considered include:

Section	Description
13.4.1	Post Announcement Pricing
13.4.2	Alternative Proposal



## 3. Scope of the Report

## 3.1 Purpose of the Report

Risco has prepared a Bidder's Statement and Supplementary Bidder's Statement in accordance with sections 636 and 647 (3) (a) of the Corporations Act and issued a Replacement Bidder's Statement on 16 May 2018. Under section 635 item 9 of the Corporations Act, Tap Oil is required to prepare a Target's Statement in response to the Bidder's Statement and Supplementary Bidder's Statement.

Section 640 of the Corporations Act requires the Target's Statement to include an independent expert's report to shareholders if:

- The bidder's voting power in the target is 30% or more; or
- The bidder and the target have a common director or directors.

Although there is no requirement under section 640 of the Corporations Act for Tap Oil to commission an independent expert's report, the Independent Directors of Tap Oil have requested that BDO prepare this Report as if it were an independent expert's report pursuant to section 640, and to provide an opinion as to whether, in the absence of a superior proposal, the Offer is fair and reasonable to Shareholders.

## 3.2 Regulatory guidance

Neither the ASX Listing Rules nor the Corporations Act defines the meaning of 'fair and reasonable'. In determining whether the Offer is fair and reasonable, we have had regard to the views expressed by ASIC in RG 111. This regulatory guide provides guidance as to what matters an independent expert should consider to assist security holders to make informed decisions about transactions.

This regulatory guide suggests that where the transaction is a control transaction, the expert should focus on the substance of the control transaction rather than the legal mechanism used to effect it. RG 111 suggests that where a transaction is a control transaction, it should be analysed on a basis consistent with a takeover bid.

In our opinion, the Offer is a control transaction as defined by RG 111 and we have therefore assessed the Offer as a control transaction to consider whether, in our opinion, it is fair and reasonable to Shareholders.

## 3.3 Adopted basis of evaluation

RG 111 states that a transaction is fair if the value of the offer price or consideration is greater than or equal to the value of the securities which are the subject of the offer. This comparison should be made assuming a knowledgeable and willing, but not anxious, buyer and a knowledgeable and willing, but not anxious, seller acting at arm's length. When considering the value of the securities which are the subject of the offer in a control transaction it is inappropriate for the expert to apply a discount on the basis that the shares being acquired represent a minority or portfolio interest and so the expert should consider this value inclusive of a control premium. Further to this, RG 111 states that a transaction is reasonable if it is fair. It might also be reasonable if despite being 'not fair' the expert believes that there are sufficient reasons for security holders to accept the offer in the absence of any alternative options.

Having regard to the above, BDO has completed this comparison in two parts:



- A comparison between the value of a Tap Oil share prior to the Offer on a control basis and the value of the Offer Consideration, being \$0.07 per Tap Oil share (fairness see section 12 'Is the Offer fair?'); and
- An investigation into other significant factors to which Shareholders might give consideration, prior to accepting the Offer, after reference to the value derived above (reasonableness see section 13 'Is the Offer reasonable?').

This assignment is a Valuation Engagement as defined by Accounting Professional & Ethical Standards Board professional standard APES 225 'Valuation Services' ('APES 225').

A Valuation Engagement is defined by APES 225 as follows:

'an Engagement or Assignment to perform a Valuation and provide a Valuation Report where the Valuer is free to employ the Valuation Approaches, Valuation Methods, and Valuation Procedures that a reasonable and informed third party would perform taking into consideration all the specific facts and circumstances of the Engagement or Assignment available to the Valuer at that time.'

This Valuation Engagement has been undertaken in accordance with the requirements set out in APES 225.



## 4. Outline of the Offer

On 2 May 2018, Risco announced an unsolicited, on-market takeover offer for all the issued shares in Tap Oil at \$0.07 per Tap Oil share, payable in cash. As the Offer is an on-market takeover offer, it is unconditional and not subject to any defeating conditions (including any minimum acceptance conditions).

Risco released the Bidder's Statement on 2 May 2018, and as a consequence of issuing a Supplementary Bidder's Statement on 16 May 2018 issued a Replacement Bidder's Statement on 16 May 2018, setting out the complete terms of the Offer.

Amongst other things, the Bidder's Statement and the Supplementary Bidder's Statement set out:

- Risco and its associates have a relevant interest in 106,963,925 Tap Oil shares in Tap Oil representing a voting interest of approximately 25.11% in the Company;
- If Risco achieves sufficient acceptances such that it holds more than 90% of Tap Oil shares, Risco intends to proceed with compulsory acquisition of the outstanding Tap Oil shares in accordance with Part 6A.1 of the Act;
- If Risco achieves sufficient acceptances such that it holds more than 75% of Tap Oil shares, Risco will seek to remove Tap Oil from the official list of the Australian Securities Exchange ('ASX');
- If Risco achieves sufficient acceptances such that it holds more than 50% but less than 90% of the Tap Oil shares on issue, Risco will seek to appoint that number of nominees to the Tap Oil board such that the Risco's nominees represent a proportion of the total number of Tap Directors which is equal to or in excess of Risco's proportionate ownership of Tap Oil; and

The Offer period is currently scheduled to end at the close of trading on the ASX on 19 July 2018.

On 15 May 2018, Tap Oil released its Target's Statement ('**Target's Statement'**). The Target's Statement stated that Mr Chatchai Yenbamroong, who has a voting interest in Tap Oil of approximately 25.5%, directly and indirectly through Northern Gulf Petroleum Holdings Limited ('**Northern Gulf'**), will reject the Offer at the current price of 7 cents per Tap Oil share. We note that, based on the guidance set out in RG 25 'Takeovers - false and misleading statements', a substantial shareholder who departs from a statement that they will not accept an Offer, may risk regulatory action by ASIC for contravention of provisions within the Act. As a consequence, we have assumed that Mr Chatchai Yenbamroong will reject the Offer. Consequently, the maximum interest in Tap Oil that Risco can achieve as a result of the Offer, assuming 100% acceptance from all other Tap Oil shareholders, is approximately 74.5%.

There is no requirement under ASX Listing Rules or the Act, for Tap Oil to engage an independent expert in relation to the Offer. However, the Independent Directors of Tap Oil have engaged BDO to prepare this independent expert's report, which is to be included in a Supplementary Target's Statement from Tap Oil, to assist the Shareholders in their decision whether or not to accept the Offer.



## 5. Profile of Tap Oil

#### 5.1 Background

Tap Oil is an oil and gas exploration and production company, with assets in South East Asia and Australia. Tap Oil's primary asset is its 30% non-operating interest in the G1/48 Concession which includes the Manora Oil Field, located in the Gulf of Thailand. Tap Oil also has oil and gas exploration assets in Australia and Myanmar.

Tap Oil announced on 25 May 2018 that it is currently focused on 'leveraging the Manora infrastructure for growth and cashflow' and 'rationalising and monetising its Australian portfolio'.

Tap Oil was incorporated in 1995, and listed on the Australian Securities Exchange in 1996. The Company is headquartered in Perth, Australia.

Following the AGM on 25 May 2018, the Company's current board members and senior management are:

- Dr Govert van Ek Non-Executive Director;
- Mr Kamarudin Baba Non-Executive Director (Nominee of Northern Gulf);
- Mr Damon Neaves Non-Executive Chairman;
- Mr Chris Bath General Manager, Chief Financial Officer and Company Secretary; and
- Ms Shannon Coates Company Secretary.

#### 5.2 Recent Corporate Events

#### **Debt Repayment**

On 28 September 2017 Tap Oil announced that it had made a final debt payment of US\$3.4 million under the borrowing base facility with BNP Paribas and Siam Commercial Bank ('**BNP Facility**'). The original US\$90 million BNP Facility was secured in April 2014, to fund the development of Manora.

#### Hedging

On 9 October 2017 Tap Oil announced that it had entered into a commodity hedge program with BP Singapore Pte Limited ('**BP**') to hedge a total of 252,000 bbls (37,500 bbls per month) of crude oil production over the period of seven months from October 2017 to April 2018, using Dubai benchmark as the reference price at a fixed price of US\$52.25/bbl.

On 9 November 2017, Tap Oil announced that it had entered into an additional commodity hedging program with BP, to hedge a total of 112,500 bbls (37,500 bbls per month) of crude oil production from June 2018 to August 2018, using Dubai benchmark as the reference price at a fixed price of US\$57.90/bbl.

During the March quarter of 2018, Tap Oil entered into additional commodity hedging with BP, to hedge 45,000 bbls (22,500 bbls per month) of crude oil production for September and November of 2018, using Dubai benchmark as the reference price at a fixed price of \$58.40/bbl.

#### **Board changes**

On 21 November 2017, Tap Oil announced that it had received notice from Risco that it intended to move resolutions at a meeting of Tap Oil shareholders, seeking the removal of Mr James Menzies, Mr Peter Mansell and Mr Tom Soulsby as Directors of Tap Oil, and the appointment of Mr Chris Newton and Dr Govert van Ek as directors of Tap Oil. On 31 January 2018, Tap Oil announced that Mr James Menzies, Mr



Peter Mansell and Ms Andrea Hall had all tendered their resignations. Tap Oil advised that the Board had resolved to appoint Mr Chris Newton and Dr Govert van Ek as non-executive directors and cancel the meeting of Tap Oil shareholders. On 7 February 2018, Tap Oil announced that Mr Frank Sreesangkom, Northern Gulf's nominee director had resigned, and that Mr Kamarudin Baba had been appointed as a non-executive director of the Company to replace him as the Northern Gulf nominee director.

On 23 February 2018 Mr Chris Newton was appointed chairman of Tap Oil. On 2 May 2018 Tap Oil announced that it had entered into a consultancy agreement with Mr Chris Newton for him to provide consultancy services to the Company.

On 2 May 2018 Mr Damon Neaves was appointed as a non-executive director of the Company.

All of Tap Oil's directors were required to be re-elected as directors at Tap Oil's 2018 AGM as they had all been appointed to fill casual vacancies which arose after the 2017 AGM. Although resolutions to re-elect Mr Neaves, Mr van Ek and Mr Baba were passed by the requisite majorities, the resolution to re-elect Mr Newton, Risco's nominee director, was not approved and so Mr Newton ceased to be a director (and chairman) of Tap Oil at the conclusion of the AGM. In addition, Mr Newton's consultancy agreement was terminated.

On 29 May 2018 Tap Oil announced that Mr Neaves had been appointed as Chairman of the Company.

#### 5.3 Project Overview

The table below summarises the exploration and production interests held by Tap Oil as at the date of our Report:

Permit		Region	Tap Oil Interest	License/Permit
G1/48		Gulf of Thailand	30.00%	Production license
WA-25-L		Carnarvon Basin, Australia	15.00%	Production license
WA-33-R		Carnarvon Basin, Australia	22.47%	Retention lease
WA-34-R		Bonaparte Basin, Australia	12.00%	Retention lease
WA-72-R		Carnarvon Basin, Australia	20.00%	Retention lease
WA-290-P	(note a)	Carnarvon Basin, Australia	10.00%	Exploration permit
WA-49-R	(note b)	Carnarvon Basin, Australia	10.00%	Retention lease
WA-515-P		Carnarvon Basin, Australia	100.00%	Exploration permit
WA-516-P		Carnarvon Basin, Australia	100.00%	Exploration permit
M-7		Myanmar	95.00%	Exploration permit

Note a - Notice of withdrawal 6 June 2018

Note b - Deed of Assignment to transfer Tap Oil's interest to remaining joint venture partners approved by NOPTA on 9 May 2018. Note c - The joint venture partners signed a resolution to surrender interests in WA-22-L on 14 May 2018. Not yet approved by NOPTA.

We note that the following was sold effective 18 June 2018, just prior to the date of this Report:

Permit	Region	Tap Oil Interest	License/Permit
TL/2	Carnarvon Basin, Australia	10.00%	Production license
TP/7	Carnarvon Basin, Australia	12.47%	Exploration permit



## Thailand

#### G1/48 - Manora Oil Field (Tap Oil interest 30%)

Tap Oil's primary asset is its 30% interest in Manora, an operating oil field located within the G1/48 concession, 80km offshore of the Prachuap Khiri Khan Province in Thailand. Tap Energy (Thailand) Pty Ltd (a wholly owned subsidiary of Tap Oil), Northern Gulf and MP G1 (Thailand) Limited ('**Mubadala**') have a participating interest in the concession ('**the Joint Venture**'). Mubadala operates the concession and the field ('**the Operator**'). Production commenced in November 2014, with the first lifting occurring in December 2014.

During 2017, the Joint Venture parties continued to assess the exploration potential of the G1/48 concession. Exploration efforts focussed on identifying prospects, reachable from the Manora Platform, that offered significant upside to the existing reserves and resources.

The Manora-6 exploration well was spudded in November 2017. Following positive results, a side-track well, Manora-6ST, was drilled. A further exploration well, Ladawan-1, was drilled in December 2017. The results were not viewed as commercial so the nearby exploration potential was downgraded. Subsequently the Joint Venture agreed to relinquish a large part of the reservation area.

In the December Quarter of 2017, two development wells, MNA-18 and MNA-19, were successfully drilled. Both wells commenced production in November 2017. At the end of 2017, 11 out of the 12 possible production wells were producing at Manora.

On 30 April 2018, the Company announced that the Joint Venture parties had approved the drilling of the Manora-8 ('Manora-8') exploration well and the Manora-8ST1 appraisal well ('Manora-8ST1'). On 7 May 2018, the Company released an updated drilling program, advising that two development wells, MNA-20 and MNA-21 would also be drilled.

Details of the wells are as follows:

- Manora-8 the primary objective of Manora 8 is to explore for hydrocarbons in the primary producing sands of Manora;
- Manora-8ST1 the primary objective of the side-tracked well is to appraise the 300-500 series reservoirs;
- MNA-20 Development Well the primary objective of the MNA-20 Development Well is to produce attic and bypassed oil in the 490-60 reservoir in the Eastern fault block (460m south of MNA-18); and
- MNA-21 Development Well primary objective to produce attic and bypassed oil in the 490-60 reservoir in the Eastern fault block (340m north of MNA-18).

The drilling program commenced in May 2018, with spudding of Manora 8 announced on 21 May 2018.

Tap Oil announced updates on the drilling program on 28 May 2018 and 4 June 2018.

#### Western Australia

#### WA-290-P/WA-49-R - Zola, Bianchi and Antiope Gas Fields (Tap Oil interest 10%)

The WA-290-P Exploration Permit is located in the offshore Carnarvon basin. Tap Oil has a 10% interest in the joint venture, which is operated by Quadrant Northwest Pty Ltd. In early 2011 the Zola discovery ('Zola') was drilled and in 2012, a five-year Retention Lease, WA-49-R, was granted over the Zola and



Antiope discoveries ('Antiope'). In 2013, the joint venture parties confirmed the Bianchi-1 gas discovery ('Bianchi'), located 6.4km north-northeast of Zola. During 2016, the joint venture approved the acquisition of the Bianchi 3D seismic survey, which commenced at the start of 2017. The results of the survey are currently being processed by DownUnder GeoSolutions Pty Ltd.

In 2017, the National Offshore Petroleum Titles Administrator ('**NOPTA**') approved a six-month suspension to the year three work program permit and a corresponding six-month extension of the permit terms (now due to end on 21 August 2018).

Tap Oil also executed a Deed of Assignment and Assumption ('**DOAA**') in relation to its 10% interest in the retention lease WA-49-R. NOPTA have advised in a letter that they are prepared to renew the lease, and that the DOAA will be processed following acceptance of the renewal by joint venture parties. The DOAA has been approved by NOPTA.

On 6 June 2018 Tap Oil gave notice of withdrawal in relation to WA-290-P.

#### WA-72 R Tallaganda Gas Field (Tap Oil interest 20%)

The WA-72-R Retention Lease is located in the offshore Carnarvon basin. Tap Oil has a 20% interest in the joint venture, which is operated by BHP Billiton Limited ('BHP'). In 2012, the joint venture parties announced a new field gas discovery in the Triassic Mungaroo Formation ('Tallaganda gas field'). In 2016, the joint venture applied for a retention lease over the Tallaganda gas field. In April 2016, Retention Lease WA-72-R, was granted. The Tallaganda structure has been defined by 3D seismic data.

#### WA-34-R Prometheus and Rubicon Gas Fields (Tap Oil interest 12%)

The WA-34-R Retention Lease is located in the offshore Bonaparte Basin. Tap Oil has a 12% interest in the joint venture, which is operated by ENI Australia B.V. The WA-34-R Retention Lease contains the Prometheus and Rubicon gas discoveries ('**Prometheus'** and '**Rubicon'**, respectively) which were both drilled in 2000. The operator plans to undertake engineering studies during 2018.

#### WA-33-R - Maitland Gas Field (Tap Oil interest 22.47%)

The WA-33-R Retention Lease is located in the offshore Carnarvon Basin. Tap Oil has a 22.47% interest in the joint venture, which is operated by Quadrant Oil Australia Pty Ltd. The WA-33-R Retention Lease contains the Maitland gas discovery ('Maitland'). Tap Oil revised the estimate of contingent resources downwards at 30 June 2017, following a data review and assessment of porosity made by the operator.

#### WA-515-P/WA-516-P (Tap Oil interest 100%)

The WA-515-P/WA-516-P exploration permits are located in the Carnarvon Basin. Tap Oil has a 100% interest in both permits. Tap Oil applied for an extension application, which was subsequently approved by NOPTA on 16 February 2018. As a result, the three year permit terms will end on 5 September 2018.

#### Myanmar

#### M-7 (Tap Oil interest 95%)

Block M-7 ('M-7') is located in the offshore Moattama Basin in Myanmar. Tap Oil is the operator and has a 95% interest in M-7. Tap Oil has been exploring options to withdraw from the M-7 production sharing contract and its remaining obligations. During the March Quarter of 2018, Tap Oil submitted a draft performance guarantee for US\$200,000, to Myanmar Oil and Gas Enterprise ('MOGE'). The withdrawal process is still ongoing; however, management expect MOGE to make a recommendation to the Ministry of Energy to support the Company's withdrawal from M-7.



#### Decommissioning activities

#### WA-25-L - Woollybutt Oil Field (Tap Oil interest 15%)

The WA-25-L Production License is located approximately 80km north of Onslow, Western Australia. Tap Oil has a 15% interest in the joint venture which is operated by Eni Australia Limited. The WA-25-L Production License contains the Woollybutt field ('Woollybutt'). In 2012, Woollybutt ceased production. Subsequently, the joint venture began to plan to decommission the field. Decommissioning planning activities have been ongoing.

Further information on the exploration and production interests held by Tap Oil can be found in the Independent Technical Valuation Report found in Appendix 4.

#### Interest in TL/2 and TP/7 sold effective 18 June 2018

We note that, as announced on 26 June 2018, Tap Oil sold its interest in the TL/2 Production License ('TL/2') and TP/7 Exploration Permit ('TP/7') located in the offshore Carnarvon Basin, effective 18 June 2018.

#### 5.4 Historical Statements of Financial Position

	Audited as at	Audited as at	Audited as at
Statement of Financial Position	31-Dec-17	31-Dec-16	31-Dec-15
CURRENT ASSETS	032,000	033000	033000
Cash and cash equivalents	7,753	6,396	15,581
Trade and other receivables	6,567	7,650	20,978
Inventories	6,255	5,847	4,475
Current tax assets	61	90	-
Held for sale assets	472	-	-
Other current assets	343	1,786	700
TOTAL CURRENT ASSETS	21,451	21,769	41,734
NON-CURRENT ASSETS			
Property, plant and equipment	40,837	54,724	74,557
Exploration and evaluation assets	143	919	3,178
Deferred tax assets	6,056	16,545	22,108
Other non-current assets	-	-	1,111
TOTAL NON-CURRENT ASSETS	47,036	72,188	100,954
TOTAL ASSETS	68,487	93,957	142,688
CURRENT LIABILITIES			
Trade and other payables	8,000	12,351	23,939
Current tax liability	-	-	422
Other financial liabilities	2,593	1,742	-
Liabilities relating to held for sale assets	211	-	-
Provisions	1,001	984	4,907
Loans and borrowings	-	8,874	25,722
TOTAL CURRENT LIABILITIES	11,805	23,951	54,990
NON-CURRENT LIABILITIES			



Statement of Financial Position	Audited as at 31-Dec-17 US\$'000	Audited as at 31-Dec-16 US\$'000	Audited as at 31-Dec-15 US\$'000
Provisions	24,602	24,244	21,248
Loans and borrowings	-	-	10,410
TOTAL NON-CURRENT LIABILITIES	24,602	24,244	31,658
TOTAL LIABILITIES	36,407	48,195	86,648
NET ASSETS	32,080	45,762	56,040
EQUITY			
Issued capital	141,624	141,524	135,174
Share options reserve	3,526	3,526	3,526
Share rights reserve	3,289	3,180	3,168
Foreign currency translation reserve	56,885	55,672	55,651
Cash flow hedge reserve	(2,242)	(1,729)	-
Profit reserve	72,940	72,940	72,940
Retained earnings	(243,942)	(229,351)	(214,419)
TOTAL EQUITY	32,080	45,762	56,040

Source: Tap Oil's Audited financial statements for the years ended 31 December 2015, 31 December 2016 and 31 December 2017

We note that Tap Oil's auditor issued an unmodified audit report for the years ended 31 December 2015, 31 December 2016 and 31 December 2017.

#### Commentary on Historical Statements of Financial Position

- Cash and cash equivalents increased from US\$6.40 million as at 31 December 2016 to US\$7.75 million at 31 December 2017. There was a net decrease in cash and cash equivalents of US\$0.05 million for the period, however the net impact of exchange rate fluctuations on cash held in foreign currencies was US\$1.41 million, which resulted in an overall increase in cash and cash equivalents of US\$1.36 million.
- Trade and other receivables of US\$6.57 million as at 31 December 2017 comprised the Company's share of joint operations' receivable of US\$5.14 million, trade receivables of US\$1.37 million and other receivables of US\$0.06 million.
- Inventories of US\$6.26 million as at 31 December 2017 comprised oil in storage at net realisable value of US\$2.67 million and materials and consumables at cost of US\$3.59 million.
- Other assets of US\$1.79 million as at 31 December 2016 comprised prepaid gas of US\$1.41 million and other prepayments of US\$0.38 million.
- Property, plant and equipment of US\$40.84 million as at 31 December 2017 comprised development expenditures of US\$40.80 million and office improvements, furniture and equipment of US\$0.04 million. Development expenditures had a gross carrying amount of US\$255.70 million, which included additions of US\$2.25 million, this was offset by accumulated depreciation of US\$214.90 million.
- Trade and other payables of US\$8.00 million as at 31 December 2017 comprised the Company's share of joint operations' payable of US\$5.74 million, trade payables of US\$2.20 million and other payables of US\$0.06 million.



- Other financial liabilities of US\$2.59 million as at 31 December 2017 related to commodity hedges. During the year ended 31 December 2017, Tap Oil executed commodity hedges with BP to hedge a total of 364,500 barrels of crude oil production over the seven-month period from October 2017 to April 2018. At 31 December 2017 US\$2.59 million was outstanding.
- Current provisions of US\$1.00 million as at 31 December 2017 related to a provision for employee benefits of US\$0.12 million and a provision for restoration costs of US\$0.88 million.
- Non-current provisions of US\$24.60 million as at 31 December 2017 primarily related to a restoration costs provision of US\$24.57 million. The provision for restoration costs primarily comprised amounts related to Manora of US\$10.7 million and Woollybutt of US\$14.5 million.

#### 5.5 Historical Statements of Profit or Loss and Other Comprehensive Income

Statement of Profit or Loss and Other Comprehensive Income	Audited for the year ended 31-Dec-17 US\$'000	Audited for the year ended 31-Dec-16 US\$'000	Audited for the year ended 31-Dec-15 US\$'000
Continuing Operations			
Revenue	44,772	63,682	102,029
Cost of sales	(38,719)	(51,432)	(75,439)
Gross profit	6,053	12,250	26,590
Other revenue	190	508	205
Administration expenses	(3,415)	(6,982)	(5,163)
Finance costs	(1,150)	(3,045)	(7,265)
Exploration expenses	-	(1,322)	-
Impairment losses and write-downs	(3,079)	(7,873)	(68,577)
Other expenses	(303)	(5,503)	(412)
Loss before tax	(1,704)	(11,967)	(54,622)
Income tax (expense)/benefit	(12,887)	(2,965)	160
Profit/(loss) for the year	(14,591)	(14,932)	(54,462)
Other comprehensive income			
Items that may be reclassified subsequently to profit and loss			
Unrealised loss on cash flow hedge	(513)	(1,729)	-
Foreign currency translation differences - foreign operations	1,213	21	423
Total comprehensive income/(loss) for the period	(13,891)	(16,640)	(54,039)

Source: Tap Oil's Audited financial statements for the years ended 31 December 2015, 31 December 2016 and 31 December 2017

#### Commentary on Historical Statements of Profit or Loss and Other Comprehensive Income

- Revenue of US\$44.77 million for the year ended 31 December 2017 comprised liquid sales of US\$39.19 million and gas sales of US\$5.58 million.
- Cost of sales of US\$38.72 million for the year ended 31 December 2017 comprised production costs related to Manora of US\$17.36 million, depreciation of capitalised development costs of US\$16.15



million, Government royalties of US\$3.14 million and production costs associated with third party gas of US\$2.09 million.

- Administration costs decreased from US\$6.98 million for the year ended 31 December 2016 to US\$3.42 million for the year ended 31 December 2017. The decrease of US\$3.57 million was primarily a result of cost reduction initiatives introduced to minimise general and administration costs.
- Finance costs of US\$1.15 million for the year ended 31 December 2017 comprised notional interest from unwinding discount on restoration provisions of US\$0.75 million and borrowing costs of US\$0.40 million. During the year ended 31 December 2017, Tap Oil made the final debt repayment on its BNP Facility. Consequently, borrowing costs decreased from US\$2.27 million for the year ended 31 December 2016 to US\$0.40 million for the year ended 31 December 2017.
- Impairment loss and write downs of US\$68.58 million for the year ended 31 December 2015 comprised exploration impairment losses of US\$20.71 million (which related to exploration and evaluation assets in Australia, Myanmar and Thailand) and property, plant and equipment impairment losses of US\$46.77 million (which related to Manora). The impairment losses were primarily a result of declining oil prices.
- Other expenses of US\$5.50 million for the year ended 31 December 2016 included a \$2.00 million payment made to Northern Gulf under a Settlement Agreement, US\$2.00 million in foreign exchange differences and US\$1.19 million in restoration and rehabilitation expenses.

#### 5.6 Capital Structure

The share structure of Tap Oil as at 12 June 2018 is outlined below:

	Number
Total ordinary shares on issue	425,967,534
Top 20 shareholders	299,509,954
Top 20 shareholders - % of shares on issue	70.31%

Source: Tap Oil's share register

The range of shares held in Tap Oil as at 12 June 2018 is as follows:

Range of shares held	Number of ordinary shareholders	Number of ordinary shares held	Percentage of issued shares
1 - 1,000	227	94,664	0.02%
1,001 - 5,000	471	1,443,730	0.34%
5,001 - 10,000	782	6,324,888	1.48%
10,001 - 100,000	1,105	34,354,580	8.07%
100,001 - and over	300	383,749,672	90.09%
Total	2,885	425,967,534	100.00%

Source: Tap Oil's share register

The ordinary shares held by substantial shareholders as at 12 June 2018 are detailed below:



Name	Number of ordinary shares held	Percentage of issued shares
Northern Gulf Petroleum Holdings Limited	108,793,046	25.54%
Hazel Resources Limited (Risco Energy Investments A/C)	106,963,925	25.11%
Mr Pichai Chunhavajira	9,002,102	2.11%
Cromwell Phoenix Opportunities Fund	7,330,287	1.72%
Flying Triangle Inc	5,762,225	1.35%
Subtotal	237,851,585	55.84%
Others	188,115,949	44.16%
Total ordinary shares on issue	425,967,534	100.00%

#### Source: Tap Oil's share register

The derivatives on issue of Tap Oil as at 9 May 2018 are outlined below:

Derivatives on issue	Number
Performance Rights	10,520,362
Retention Rights	1,024,544

Source: Tap Oil's share register

The Performance Rights are in the form of long term incentive (**'LTI'**) awards made to employees of Tap Oil to encourage them to become shareholders. The LTI awards are made as grants of performance rights based on the Company's performance over a three-year time period with a similar timeframe for vesting. Employee LTI's are based on a percentage of an individual's Fixed Annual Reward (base salary, fixed allowances, benefits and superannuation). The performance benchmark is based on the Company's relative total shareholder return compared to a peer group of like companies. We note that only 9,072 of 585,467 performance rights granted up to and including 1 January 2015 vested. The remainder lapsed due to the vesting performance conditions not being met.

The grant date and vesting date for the Performance Rights currently on issue are as follows:

Grant date	Vesting date	Number of Performance Rights
1-Jan-16	1-Jan-19	327,685
1-Jan-17	1-Jan-20	2,962,615
20-Feb-17	1-Jan-20	1,559,453
1-Jan-18	1-Jan-21	5,670,609
		10,520,362

Retention rights are issued to employees on commencement of employment and vest if the employee remains employed by the Company for three years.



## 6. Profile of Risco

#### 6.1 Background

Risco is part of a group of entities which are managed or advised by Mr Tom Soulsby and Mr Chris Newton and which all use the 'Risco' name ('Risco branded group') but are otherwise independent. The Risco branded group was founded by Mr Soulsby and Mr Newton in 2010 and since inception has invested in seven oil and gas projects, mainly in South-East Asia. The Risco branded group currently has two active investments in the upstream oil and gas sector in Asia via ASX listed companies - Tap Oil and Lion Energy Limited.

Suncastle Equities Inc. ('Suncastle') holds 68.01% of the shares in Risco. Other than Suncastle, Risco has three other shareholders none of whom has 20% or more of Risco's shares.

The Bidder's Statement notes that Mr Tom Soulsby has entered into a Cooperation Deed with Suncastle, under which he has agreed to provide funding to assist Suncastle in providing funding to Risco for the purpose of assisting Risco to acquire all of the shares not already owned by Risco under the Offer.

Source: Bidder's Statement, Replacement Bidder's Statement and Supplementary Bidder's Statement.



## 7. Economic analysis

## 7.1 Global

Conditions in the global economy remain positive. Available information suggests the global economy has continued to expand into the March quarter of 2018. A number of advanced economies are growing at an above-trend rate and unemployment rates are low. Growth picked up in the Asian economies in 2017, partly supported by increased international trade.

Growth in China was strong through 2017, however it has eased slightly in the recent quarter, reflecting the Chinese authorities' objective of more sustainable growth. In March 2018, the Chinese Government released a gross domestic product ('**GDP**') growth target of approximately 6.5 percent for 2018, down from its published GDP growth rate of 6.9% in 2017, suggesting some tolerance for a gradual slowing of growth. Investment in infrastructure and residential property remains strong, with demand from these sectors supporting modest growth in crude steel production, which in turn has supported demand for iron ore and coking coal.

The pick-up in the global economy has contributed to a rise in oil and other commodity prices over the past year. Even so, Australia's terms of trade are expected to decline over the next few years, but remain at a relatively high level.

Globally, inflation remains low, although it has increased in some economies and further increases are imminent given the tight labour markets. As conditions have improved in the global economy, a number of central banks have withdrawn some monetary stimulus and further steps in this direction are to be expected.

Both Chinese and United States of America authorities recently announced trade protectionist measures. The US increased import tariffs on certain items including steel and aluminium. The effect of the US tariffs on other economies is expected to be small, with many countries being granted temporary exemptions. The Chinese economy will be little affected as steel and aluminium exports to the US are only a small share of Chinese production. In response to the US tariffs on steel and aluminium, the Chinese authorities imposed tariffs on US\$3 billion of US goods. With both countries foreshadowing further tariffs, there is a risk that trade protectionism could escalate, harming global growth significantly. Rising geopolitical risks, including tensions in the Korean Peninsula could also dampen confidence and create bouts of financial market volatility.

#### 7.2 Australia

#### Domestic growth

The Australian economy grew by 2.4 per cent over 2017. The Reserve Bank of Australia ('**RBA**') is expecting faster growth in the next couple of years, with forecasts suggesting that average growth in 2018 and 2019 will be above 3%. Business conditions are positive, with overall business investment expected to continue growing over the next few years, as non-mining business investment increases. Mining investment is expected to slightly decline as construction on large liquefied natural gas projects concludes. Public spending is also supporting domestic economic activity. Public consumption has been growing strongly, in part supported by spending on the National Disability Insurance Scheme. Stronger growth in exports is expected after temporary weakness at the end of 2017. Household spending picked up in the December Quarter of 2017, and recent indicators suggest that household consumption growth has remained steady into early 2018, however low growth in household income and high debt levels remains a key risk to the outlook for household consumption.



#### Unemployment

Employment grew by 3.5% over the past year, with employment figures rising in all states. The strong growth in employment has been accompanied by a significant rise in labour force participation, particularly by women and older Australians. Indicators of labour demand, including job vacancies, continue to point to above average growth in employment over the next six months. The unemployment rate has declined slightly over recent years, but from mid-2017 has remained relatively unchanged, at around 5.5%. Conventional measures of full employment suggest the current unemployment rate is around 0.5% above full employment, implying spare capacity in the labour market. The various forward-looking indicators continue to point to strong growth in employment in the period ahead, with a further gradual reduction in the unemployment rate expected. Wages growth has picked up slightly, but remains low. The RBA cites spare capacity in the labour market, low inflation and continuing adjustments to the economy following the mining investment boom, as reasons for low wages growth. Low wages growth is likely to continue for a while yet, although the stronger economy should see some lift in wage growth over time.

#### Inflation

Inflation remains low and stable. Headline inflation and underlying inflation were both close to 0.5% for the March quarter 2018, and around 2% over the year. Inflation is likely to remain low for some time, reflecting spare capacity in the economy, low wages growth and strong competition in retailing. Inflation is expected to be around 2.25% over the next year, and long term inflation expected to be around 2.5%.

#### **Currency movements**

Since the start of the year, the Australian dollar has depreciated against the US dollar and on a trade weighted basis, however it remains within its narrow range of the past two years. The decline was a result of lower bulk commodity prices and narrowing interest rate differentials. An appreciating exchange rate would be expected to result in a slower pick-up in economic activity and inflation.

Source: <u>www.rba.gov.au</u> Statement by Philip Lowe, Governor: Monetary Policy Decision 3 July 2018, Statement on Monetary Policy - May 2018

#### 7.3 Thailand

In the March quarter of 2018 the Thai economy continued to expand, primarily driven by an expansion in merchandise exports and tourism. Merchandise exports grew across most product groups, largely as a result of continued improvement in external demand for products such as chemical and petrochemical products, automotive parts and electronic products. New direct flight routes from China's secondary cities saw the tourism sector remain strong.

Employment remained stable, with increasing demand for employees in the trade and service sectors offset by a continued shift to automation in the manufacturing sector. In the March quarter of 2018, headline inflation accelerated, largely due to increases in retail petroleum prices. The Thai Baht depreciated against the US dollar, however its movements relative to its trading partners' currencies was largely unchanged

Overall financial conditions in Thailand remain accommodative and conducive to economic growth. Real interest rates remain low, which has allowed financing by the private sector to expand, with gradual improvements seen in the amount of credit extended to small and medium enterprises and consumer loans. The Bank of Thailand ('BOT') assessed overall financial stability as sound, however it noted that



pockets of risk would need to be monitored. In particular, the BOT stated that search-for-yield behaviour in a low interest rate environment, could lead to the under-pricing of risks and see a deterioration of debt serviceability of households and small and medium enterprises.

Source: Bank of Thailand: Monetary Policy Decision 16 May 2018

## 8. Industry analysis

#### 8.1 Global Oil and Gas Industry

The primary products of the oil and gas industry are crude oil and natural gas, and to a lesser extent, liquefied petroleum gas, coal seam gas and shale oil and gas. Historically, oil and gas have been extracted from "conventional" plays in which the hydrocarbons are trapped by an overlying layer of permeable rock allowing for traditional extraction methods. However, oil and gas can also be found in other geological settings, such as shale formations. Shale oil and gas resources are formed within the organic rich shale source rock. As the low permeability of the shale inhibits the oil and gas from migrating to permeable reservoir rocks, shale oil and gas is often referred as 'unconventional' plays or 'tight' oil and gas.

Over the last decade, there has been significant growth in unconventional resource development due to breakthroughs in technology, which have resulted in resources located in shale and other tight formations becoming commercially viable. In 2017, global oil production totalled 4.38 billion tonnes or 92.15 million barrels daily, an increase of almost 0.5 million barrels daily on the year prior, driven largely by the continued development of shale oil.

While the growth, cost and risk profiles of oil and gas industry products may vary, depending on the method and technology necessary for extraction, commodities are generally traded on the same market once extracted. The global oil and gas industry is therefore one of the largest in the world, and as is inherent to large markets, the industry is dominated by large highly integrated companies. The scale of operations and the significant capital investment required to bring fields into production represent very high barriers to entry.

Oil is the world's leading fuel, accounting for one-third of global energy consumption, although overall demand has been in a declining trend since 2005. The transport sector including road, rail, sea and air, currently accounts for approximately 60% of global oil consumption, and as a result, demand for oil is largely influenced by global economic growth. Global oil consumption increased by 1.5% to total 4.42 billion tonnes in 2017, led by the US, China and India.

Demand for natural gas is predominantly related to energy consumption for both industrial and household electricity production. In 2017, global production totalled 3.55 trillion cubic meters (' $m^{3}$ '), remaining generally steady from 2016. Consumption of natural gas increased by 1.5% in 2017, weaker than its 10-year average increase of 2.5%, to total 3.54 trillion  $m^{3}$ , led by the US, Russia and China.

#### 8.2 South East Asian Oil and Gas Industry

South East Asia is a mature oil producing region, accounting for approximately 1% of global oil reserves. Oil production in the region has fallen from 2.9 million barrels per day ('**mb/d**') in 2003 to 2.5mb/d in 2016. The declines are largely as a result of falling production in Indonesia, the region's largest producer. Production in Indonesia has fallen by almost 40% since 2000, primarily as a result of declines in existing fields. Lower oil prices have dampened investment in the region, which has impacted on the discovery and development of resources.



Oil production in Thailand has grown more than any other country in the region since 2000. Thailand's oil and gas sector is well developed, having conducted 20 petroleum concession bidding rounds. Upstream oil and gas activity in Thailand is dominated by Thai company PTT Public Company Limited ('PTT'), however other international oil and gas companies, including Chevron, also participate in upstream oil and gas activity.

South East Asia is a mature oil producing region which has faced resource ownership issues, infrastructure constraints and decreased capital expenditure as a result of lower oil prices, which have constrained production. However, in the future there is potential to increase output, as some areas within the region (that could hold significant resources) still remain relatively unexplored.

Source: WEO and Austrade

#### 8.3 Global Reserves

#### Crude Oil

At the start of 2017, proved global oil reserves stood at 1,677 billion barrels, with the top 10 countries contributing 85% of total proven reserves. Global oil reserves have more than doubled over the past 35 years, contrasting with the slowing growth in oil demand. At the current global production rate, this is sufficient to sustain production for 50 years.



Source: <u>www.cia.gov</u> World Factbook, updated January 2017

#### Natural Gas

Technically recoverable natural gas resource at the start of 2017 was measured at 197 trillion m<sup>3</sup>. Russia, Iran and Qatar were the biggest regions, collectively representing 53% of total recoverable natural gas resource. Like oil, at the current production rate, the known resource is sufficient to meet 50 years of global production.





Source: www.cia.gov World Factbook, updated January 2017

#### 8.4 Price Trends

Supply and demand are the most influential factors driving fluctuations in oil and gas prices. This is evident in the volatile price movements which often follow meetings held by the Organisation of the Petroleum Exporting Countries ('OPEC') to determine short-term oil supply. The graph below highlights the dramatic change in oil and gas prices following the GFC. In the six months from June 2008 onwards, the price of oil declined from approximately US\$140 per barrel to reach a low of approximately US\$30 per barrel in January 2009. Natural gas prices experienced similar volatility, peaking at approximately US\$13.50 per million British Thermal Units ('MMBTU') in July 2008 and declining to US\$2.50 in September 2009. Following the aftermath of the GFC, the oil price experienced a prolonged period in which the average price was US\$100 per barrel, throughout 2011-2014. In 2015-16 however, global oversupply saw a dramatic fall in crude oil prices to an average of US\$50 per barrel.



Source: Bloomberg

The graph above illustrates how natural gas prices were highly correlated with oil prices between 2008 and 2010 before deviating in 2011. The divergence was mainly attributable to developments in shale gas



production which meant that natural gas prices were at record discounts to oil prices. Since 2011, oil and gas prices have generally moved in the same direction, with the exception of the February 2014 spike in natural gas prices following a period of deficit in which storage levels reached their lowest in ten years. Forecasts predict that prices will continue to follow a relatively similar directional trend into the future.

High global oil inventories throughout the first half of 2017 resulted in generally lower trending prices in the first half of the year, before the market recorded a large deficit in the second quarter of 2017. The deficit, which was attributable to unexpectedly large growth in demand and compliance of producers to reduce output, saw the price per barrel exceed US\$60 for the first time since 2015. In 2018, the crude oil price has increased, as strong demand continues amongst production restraints and falling supply.

There are three main oil price benchmarks:

- Brent crude;
- Western Texas Intermediate (WTI); and
- Dubai Fateh crude.

Although these benchmarks are priced separately, the main price movements tend to be in parallel with a consistent price differential between the benchmarks.

Source: www.worldbank.org Commodity Markets Outlook, October 2017

#### 8.5 Outlook

Oil and gas production has increased over the last 20 years and is forecast to continue doing so into the mid to long-term. The five-year oil outlook released by OPEC highlights the slowing of demand growth rather than a change in the demand pattern, while demand for natural gas is forecast to continue its recent growing trend. It is expected that energy production and transport fuel demand will continue to be the primary drivers of this growth.

Global energy demand is predicted to increase by 35% over the period 2015-2040, driven largely by electricity production and growth in developing and non-Organisation for Economic Co-operation and Development countries, particularly India. Natural gas is anticipated to be the largest contributor, increasing its share in the global energy mix by 3.6% and overtaking coal as the second largest energy source behind oil. Forecast increases in oil prices and tighter regulations surrounding energy efficiency are expected to drive this change.

The IEA predicts that industrial demand in particular will be the largest area for growth in natural gas, which is forecast to reach 93 million barrels of oil equivalent per day ('mboe/d') by 2040, up 45%, up from approximately 34 mboe/d in 2016. Global oil production currently stands at 92.15 million barrels per day and the rate of demand growth is predicted to increase by an annual average of 1.3 million barrels per day for the period 2016-2020 before slowing to only 0.3 million barrels per day annually between 2035-2040.

The transportation sector will remain the main consumer of oil products accounting for around 60% of demand, with the road transportation sector contributing the highest percentage to demand growth. The growing popularity of electric cars, tighter vehicle fuel efficiency standards, particularly the application of these to trucks, and changes in International Marine Organization regulations are expected to impact future oil demand, although these will be partially offset by growth in demand for car travel in emerging economies.

The price of oil and the price of natural gas are expected to trend slightly upwards over the next five years (refer section 8.4 above). More investment in global oil production capacity is necessary however to


avoid the risk of a shortage and substantial price increase in the early 2020s. According to the IEA, oil producers have seen recent cost reductions of 15% in 2015 and 17% in 2016. These reductions indicate that many of these producers are now capable of competitively positioning themselves to maintain production in a lower price environment. Light oil products are predicted to satisfy more than half of long-term oil growth demand.

Substitutes for oil and gas include coal, solar power, wind power, hydroelectricity and nuclear energy. The IEA predicts that renewable energy sources will experience the fastest average annual consumption growth rate of 6.8%, however it is anticipated that oil and gas will still supply more than 50% of global energy needs by 2040. As discoverable reserves are depleted and alternative fuels become more widely available with advances in technology, these traditional fuel sources will face a more apparent threat of substitution. Nonetheless, for the medium term, oil and gas will continue to play a fundamental role in all economies, particularly in developing countries lacking the investment and infrastructure necessary to move to renewable fuel sources.

Source: IBIS World Oil and Gas Industry Report December 2017 by Jason Aravanic, <u>www.iea.gov</u> Annual Energy Outlook 2017, <u>www.opec.org</u> World Oil Outlook Report 2017, <u>www.iea.org</u> World Oil Analysis and Forecast 2017, <u>www.iea.org</u> World Energy Outlook 2017, <u>BP Statistical Review of World Energy 2017</u> and BP Energy Outlook 2017



# 9. Valuation approach adopted

There are a number of methodologies which can be used to value a business or the shares in a company. The principal methodologies which can be used are as follows:

- Capitalisation of future maintainable earnings ('FME')
- Discounted cash flow ('DCF')
- Quoted market price basis ('QMP')
- Net asset value ('NAV')
- Market based assessment.

A summary of each of these methodologies is outlined in Appendix 2.

Different methodologies are appropriate in valuing particular companies, based on the individual circumstances of that company and available information.

#### 9.1 Valuation of a Tap Oil share

In our assessment of the value of a Tap Oil share we have chosen to employ the following methodologies:

- Sum-of-parts method, as our primary approach, which estimates the market value of a company by separately valuing each asset and liability of the Company. The value of each asset may be determined using different methods. We have valued the component parts of Tap Oil using the DCF and NAV methods
- QMP method as our secondary approach as this represents the value that a Shareholder can receive for a share if sold on the market.

We have chosen these methodologies for the following reasons:

- We have adopted the sum-of-parts approach combined with the NAV and DCF methodologies as our primary valuation method. The Company's main assets are its interest in the Manora Oil Field and its exploration assets.
- We have valued Tap Oil's interest in the Manora Oil Field using the DCF methodology based on the financial forecast of future production from the Manora Oil Field. In undertaking this DCF valuation we have utilised the services of RISC Advisory, independent petroleum consultants. RISC Advisory has provided technical inputs to the financial forecast model.
- RISC Advisory has also provided an independent opinion of the market value of Tap Oil's other exploration assets.
- The remaining assets and liabilities of Tap Oil have been valued based on their book value.
- We consider the QMP methodology to be relevant as Tap Oil shares are listed on the ASX. Therefore, there is a regulated and observable market where Tap Oil's shares can be traded. However, in order for the QMP methodology to be considered appropriate, Tap Oil's shares should be liquid and the market should be fully informed as to its activities. We have considered these factors in section 10.1 of our Report;

#### 9.2 Technical specialist

In performing our valuation of a Tap Oil share, we have relied on the technical assessment and valuation report prepared by RISC Advisory dated 10 July 2018 ('RISC Advisory's Report'), based on RISC Advisory's



review of the technical inputs and assumptions contained in Tap Oil's financial forecast model, which we have used for our DCF Valuation of Tap Oil's interest in the Manora Oil Field.

RISC Advisory's Report also addresses the market value of Tap Oil's exploration assets including its other Thai assets not included in the Tap Oil financial forecast model and its Australian assets.

We are satisfied with the methodologies adopted by RISC Advisory, which we believe are in accordance with industry practices and compliant with the requirements of the 'Australian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets 2015' ('**the Valmin Code 2015'**). A copy of RISC Advisory's Report is attached as Appendix Four.

BDO

# 10. Valuation of Tap Oil on a control basis prior to the Offer

# 10.1 Sum of Parts Valuation of a Tap Oil share

We have employed the Sum-of-Parts methodology in estimating the fair market value of a Tap Oil share by aggregating the fair market values of its underlying assets and liabilities, having consideration to the following:

- value of Tap Oil's interest in the Manora Oil Field using the DCF valuation methodology based on the financial forecast of future production from the oil field and with technical inputs provided by RISC Advisory;
- value of Tap Oil's other exploration assets based on an independent opinion on the market value of Tap Oil's other exploration assets by RISC Advisory; and
- value of the remaining assets and liabilities of Tap Oil based primarily on their book value.

We have also considered the net present value of Tap Oil's corporate costs and of Tap Oil's hedging arrangements.

A summary of our Sum-of-Parts valuation is set out in the table below.

Sum-of-Parts	Ref	Low \$m	Preferred \$m	High Şm
DCF valuation of the Tap Oil's interest in the Manora Oil Field	10.1.1	28.9	34.7	39.6
Add: Value of Tap Oil's Manora assets additional to 2P	10.1.2	1.9	1.8	2.6
Add: Value of Tap Oil's other exploration assets	10.1.3	8.9	8.9	16.5
Add: Value of Tap Oil's other assets and liabilities	10.1.4	7.3	7.3	7.3
Less: Present value of corporate costs	10.1.5	(11.6)	(11.6)	(11.6)
Less: Present value of Tap Oil's hedging arrangements	10.1.6	(1.7)	(2.4)	(3.2)
<ul><li>Value of Tap Oil on a controlling basis prior to the Offer Number of shares on issue (#)</li><li>Value per Tap Oil share (control basis) (\$)</li></ul>	10.1.7	<b>33.7</b> 425,967,534 0.079	<b>38.7</b> 425,967,534 0.091	<b>51.2</b> 425,967,534 0.120

Source: BDO analysis

The table above indicates the net asset value of a Tap Oil share is between \$0.079 and \$0.120 with a preferred value of \$0.091.

The individual elements of the Sum-of-Parts valuation are set out in the following sections.

### 10.1.1. Discounted valuation of Tap Oil's interest in the Manora Oil Field

#### 10.1.1.1. Future Cash Flows

A detailed cash flow model for Tap Oil's interest in the Manora Oil Field was provided by the management of Tap Oil ('the Model'). The Model is based on the estimated Proven and Probable Reserves ('2P Reserves') for the Manora Oil Field in Thailand. The Model depicts forecasts of nominal, post-tax cash flows for Tap Oil over the life of the Manora Oil Field on a monthly basis. We have reviewed the Model and the material assumptions that underpin it.



Where we considered it appropriate, we have made certain adjustments to the Model to arrive at an adjusted model ('**the Adjusted Model**'). We have used the Adjusted Model in our DCF valuation.

The adjustments we have made to the Model to arrive at the Adjusted Model reflect any changes to technical assumptions together with operating and capital costs as a result of RISC Advisory's technical assessment and any changes to the economic and other input assumptions arising from our assessment and research.

Further, the Adjusted Model extends the Model to reflect the production and decommissioning profile set out by RISC Advisory. We note the Model depicts cash flows until 31 December 2023, however RISC Advisory's Report considers the production and decommissioning profile for the Manora Oil Field through to 31 December 2025. Therefore, we have extended the cash flows until 31 December 2025, to be consistent with RISC Advisory's production and decommissioning profile.

The Adjusted Model was prepared based on estimates of a production profile, operating costs and construction and sustaining capital expenditure until 31 December 2025. The main assumptions underlying the Adjusted Model include:

- drilling and production volumes of oil;
- oil prices;
- operating costs;
- capital expenditure;
- royalties and taxes payable; and
- discount rate.

We undertook the following analysis on the Adjusted Model:

- analysed the Adjusted Model to confirm its integrity and mathematical accuracy;
- appointed RISC Advisory as technical expert to review, and where required, provide changes to the technical assumptions and inputs;
- held discussions with Tap Oil's management regarding the preparation and forecasts in the Model and its assumptions;
- conducted independent research on certain economic and other inputs such as oil prices, exchange rates, inflation and the discount rate applicable to the future cash flows; and
- performed a sensitivity analysis on the value as a result of flexing selected key assumptions and inputs.

We note that our DCF valuation of Tap Oil's interest in the Manora Oil Field is for the 2P Reserves. The assessment of the value of Tap Oil's interest in the Manora Oil Field which is additional to the 2P reserves, being the incremental value of the 'proven and probable' Contingent Resources ('**2C Resources**') over and above the 2P Reserves, is addressed separately with reference to the assessment provided by RISC Advisory as the technical expert.

Tap Oil's interest in the Manora Oil Field is a 30% interest. The operator is Mubadala Petroleum (Thailand) Ltd.



We have not undertaken a review of the cash flow forecasts in accordance with Australian Auditing Standard on Assurance Engagements ASAE 3450 'Assurance Engagements involving Corporate Fundraisings and/or Prospective Financial Information' and do not express an opinion on the achievability of the forecast. However, nothing has come to our attention as a result of our procedures to suggest that the assumptions on which the Adjusted Model has been based have not been prepared on a reasonable basis.

### Appointment of a technical expert

RISC Advisory was engaged to prepare a report providing a technical assessment of the assumptions and inputs underlying the Model to allow us to adopt or make changes to those assumptions and inputs for the Adjusted Model. RISC Advisory's assessment involved the review and provision of opinion on the reasonableness of the assumptions and inputs, including but not limited to:

- drilling and production volumes of oil;
- operating expenditures;
- capital expenditure;
- decommissioning expenditure; and
- other relevant assumptions.

RISC Advisory developed a production and cost forecast for Tap Oil's interest in the Manora Oil Field under the 2P Reserves scenario. We note that RISC Advisory has also provided an assessment in relation to the scenario for 2P Reserves plus 2C Resources (**'2P+2C Scenario'**) which is addressed below.

A copy of RISC Advisory's Report is included at Appendix Four.

#### Limitations

Since forecasts relate to the future, they may be affected by unforeseen events and they depend, in part, on the effectiveness of management's actions in implementing the plans on which the forecasts are based. Accordingly, actual results may vary materially from the forecasts included in the Adjusted Model, as it is often the case that some events and circumstances frequently do not occur as expected, or are not anticipated, and those differences may be material.

#### Economic assumptions

#### Inflation

The Model reflects cash flows on a nominal basis. However, we note that RISC Advisory's assessment of forecast operating, capital and decommissioning costs has been prepared on a real basis. Therefore, we have applied an inflation rate to convert all uncontracted costs assumed by RISC Advisory into nominal terms in the Adjusted Model. We have also calculated a nominal discount rate.

We note that Manora Oil Field operating costs are cash called by the Operator in US\$. Therefore, we consider the most appropriate inflation rate to apply to the cash flows in the Adjusted Model is the US inflation rate.

Having regard to the above, we have assumed an inflation rate of 2.2% over the remaining production profile of the Manora Oil Field.



#### Foreign exchange rate

The cash flows presented in the Model are denominated in US\$. As we are assessing the value of Tap Oil, an Australian company, we have converted all the cash flows in the Adjusted Model to \$A at the forecast exchange rates as set out below.

In our assessment of foreign exchange rates, we have considered forecasts prepared by economic analysts and other publicly available information including broker consensus to arrive at our foreign exchange rate assumptions.

The conversions from US\$ to \$A were undertaken using the following foreign exchange rate assumptions.

Exchange Rates	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	2020	2021	2022 & onward
US\$: \$A	0.75	0.76	0.76	0.77	0.78	0.78	0.79	0.77	0.77

Source: Bloomberg and BDO analysis

#### **Revenue assumptions**

In assessing forecast oil prices, we considered Bloomberg and Consensus Economics price forecasts as at May 2018. Based on our analysis, we have adopted the following future crude oil prices (in nominal terms):

Oil Prices (Brent)	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	2020	2021	2022	2023 & onward
Forecast price (US\$/barrel)	72.0	72.0	72.0	72.0	71.0	70.0	70.0	68.0	67.0	69.0

Source: Bloomberg, Consensus Economics

We note that the future (Brent) crude oil prices are further adjusted in the Adjusted Model to reflect that prices for the Manora Oil Field are referenced to the Dubai Fateh oil price.

Based on our research of the historical price differential between the Brent and Dubai Fateh benchmark oil prices we have adopted a discount of US\$3 as an estimate of the discount of Dubai Fateh oil prices from the forecast Brent oil prices.



### **Production forecasts**

The graph below shows the forecast oil to be produced over the production profile of the Manora Oil Field based on the inputs provided by RISC Advisory. The profile shown is for 100% of the Manora Oil Field, not just Tap Oil's 30% interest.



Source: Adjusted Model and RISC Advisory

#### **Operating costs**

Operating costs included in the Adjusted Model consist of the following:

- platform directs;
- operational support (primarily floating storage and offloading ('FSO') rental and management);
- well services and workovers;
- engineering and technical support; and
- general and administration expenses

We engaged RISC Advisory to review and opine on the reasonableness of the operating costs underpinning the Model. RISC Advisory developed operating cost forecasts from a combination of actuals, work programme and budgets, joint venture meeting information, correspondence with Tap Oil, and professional experience. As Mubadala is the operator of the Manora Oil Field, some of the operator cost information is provided to Tap Oil from that source. Further details of RISC Advisory's operating cost inputs and assumptions, which we have adopted in the Adjusted Model, may be found in RISC Advisory's Report in Appendix Four.





Source: Adjusted Model and RISC Advisory

#### Capital expenditure

Capital expenditure contained in the Model comprises capital expenditure associated with new wells and flowlines, ongoing brownfields projects and planned modifications for debottlenecking.

We engaged RISC Advisory to review and provide an opinion on the reasonableness of the capital expenditure underpinning the Model and where appropriate we have made adjustments in the Adjusted Model. RISC has confirmed that the assumptions included in the Adjusted Model are based on reasonable grounds.

Further details of the capital expenditure assumptions contained in the Adjusted Model can be found in RISC Advisory's Report at Appendix Four.



#### Total Manora Capital Expenditure (2P)

Source: Adjusted Model and RISC Advisory



### Royalties

Companies engaged in petroleum production activities in Thailand are required to pay royalties to the Thai Government. Concessions granted under the Thailand III Fiscal Regime (including the concession covering the Manora Oil Field), are subject to monthly royalties, calculated as a percentage of gross revenue (between 5% and 15%) depending on production rates. The monthly royalty payment is calculated in the Adjusted Model based on the monthly production rates as reviewed by RISC Advisory.

# Taxation

The Model was prepared on a post-tax basis, and incorporates the following:

#### Petroleum Income Tax

Tax was applied to the Model in accordance with the relevant legislation, which is that applicable to Thailand. The current petroleum income tax in Thailand is calculated as 50% of annual profits (payable half yearly).

#### **Special Remuneratory Benefit**

Companies engaged in petroleum production activities in Thailand are also required to pay a special remuneratory benefit ('**SRB**') to the Thai Government. The SRB rate payable is calculated based on the annual revenue per one metre depth of well. The Model incorporates a calculation for SRB payable. We consider that the SRB calculation included in the Model is reasonable.

#### 10.1.1.2. Discount Rate

We have assessed a nominal post-tax discount rate in the range of 8.7% to 11.8% to discount the cash flows to present value. We have used a rounded midpoint discount rate of 10.0% in our base case.

In selecting this range of discount rates, we have considered the following:

- the rate of return for comparable ASX-listed oil and gas producing companies; and
- the risk profile of Tap Oil as compared to other oil and gas producing companies with operations in the region.

A detailed consideration of how we arrived at our adopted discount rate range is shown in Appendix 3.

### 10.1.1.3. Sensitivity Analysis

We have analysed the key inputs and assumptions to the Adjusted Model and have prepared sensitivities in relation to the Net Present Value ('NPV'). These sensitivities have been prepared to assist Shareholders in considering the potential effects on the value of Tap Oil's interest in the Manora Oil Field if our base case inputs and assumptions change.

We note that Adjusted Model incorporates an economic cut-off date calculation which is assessed as December 2022 for the 2P scenario with production continuing to February to complete the next lifting. The economic cut off occurs when production revenue (net of royalties) is less than operating costs (adjusted for FSO fees). Therefore, changes in the key assumptions, will potentially have an impact on both the economic cut off and the NPV of the Adjusted Model. We have calculated the sensitivities with a fixed economic cut-off of December 2022 (and production continuing to February 2023).



	Sensitivity Analysis				
Porcontago chango	NPV	NPV	NPV	NPV	
Percentage change	(A\$m)	(A\$m)	(A\$m)	(A\$m)	
	Oil Price (USD/bbl)	Exchange rate (US\$:\$A)	Capital expenditure	Operating expenditure	
-10%	23.2	31.8	35.4	40.8	
-5%	28.9	33.2	35.1	38.1	
0% - base case	34.7	34.7	34.7	34.7	
+5%	39.6	36.2	34.3	31.1	
+10%	43.8	37.7	34.0	27.5	

Source: BDO analysis, Adjusted Model

We have addressed the discount rate sensitivity over the range from 8.7% to 11.8% as set out in Appendix 3.

Discount rate sensitivity analysis			
Discount rate (%)	8.7%	10.0%	11.8%
NPV (A\$m)	34.6	34.7	34.8

Source: BDO analysis, Adjusted Model

In considering the above sensitivities, Shareholders should note the following:

- the variables described above may have compounding or offsetting effects and are unlikely to move in isolation; and
- the variables for which we have performed sensitivities are not the only variables which are subject to deviation from the forecast assumptions.

#### 10.1.1.4. Valuation of Tap Oil's interest in the Manora Oil Field

Our preferred value of \$34.7 million represents the rounded NPV of Tap Oil's interest in the Manora Oil Field contained in the Adjusted Model in our base case scenario.

Our range of values for Tap Oil's interest in the Manora Oil Field is from \$28.9 million to \$39.6 million (based on the range of sensitivities for the plus 5% and minus 5% sensitivities for the oil price, being the most sensitive variable) with a preferred value of \$34.7 million.

	Low	Preferred	High
	\$A million	\$A million	\$A million
Value of Tap Oil's interest in the Manora Oil Field (2P)	28.9	34.7	39.6

# 10.1.2. Value of Tap Oil's Manora assets additional to 2P (Proven and Probable Reserves)

We instructed RISC Advisory to provide an opinion on the market value of the exploration assets held by Tap Oil.



Included in these other exploration assets of Tap Oil are its interests in the areas of the Manora Oil Field which are currently being explored ('Additional Manora Assets') and which are not included in the Model and Adjusted Model which only include 2P (Proven and Probable Reserves).

In assessing the value of these Additional Manora Assets, RISC Advisory provided its assessment of value as the incremental change to the overall value of Tap Oil's interests in the Manora Oil Field arising from the excess of value for the 2P +2C scenario over the value in the Adjusted Model (being the 2P scenario).

Essentially, RISC Advisory's assessment addressed the impact on the production profile (together with the implications for costs) for the Manora Oil Field of adding the 2C Resources to the 2P Reserves.

For the high and low values for the '2P + 2C' scenario we have applied the plus 5% and minus 5% sensitivities relating to the most sensitive variable (oil price) to determine the range.

Tap Oil	Low value	Preferred value	High value
Additional Manora Assets	\$A million	\$A million	\$A million
Value of Tap Oil's interest in the Manora Oil Field (2P)	28.9	34.7	39.6
Value of Tap Oil's interest in the Manora Oil Field (2P + 2C)	30.8	36.5	42.2
Value of Tap Oil's Additional Manora Assets (\$A)	1.9	1.8	2.6

Source: RISC Advisory and BDO

#### 10.1.3. Value of Tap Oil's other exploration assets - Australia and Myanmar

For Tap Oil's other exploration assets (or 'non-producing assets' as described by RISC Advisory), RISC Advisory considered a number of different valuation methods. RISC Advisory applied the following methods:

- Comparable transaction metrics;
- Farm-in promotion factors;
- Work programme;
- Expected monetary value; and
- Market factors.

Further details of these methodologies are set out in section 2.2.3 of RISC Advisory's Report - refer Appendix 4.

We consider these methods to be appropriate for the valuation of Tap Oil's other exploration assets. The range of values for each of Tap Oil's exploration assets as assessed by RISC Advisory is set out below:

Tap Oil	Low value	Midpoint value	High value
Other Exploration Assets Valuation	US\$ million	US\$ million	US\$ million
Permit			
WA-25-L (Australia)	(8.2)	0.7	5.9
WA-33-R (Australia)	0.8	1.9	2.7
WA-72-R (Australia)	2.3	3.8	6.1
WA-34-R (Australia)	0.3	0.4	0.5
M7 (Myanmar)	(0.2)	(0.2)	(0.2)



Tap Oil	Low value	Midpoint value	High value
Other Exploration Assets Valuation	US\$ million	US\$ million	US\$ million
Total value of Tap Oil's other exploration assets (US\$m)	(5.1)	6.6	14.9
RISC's probabilistic total	P90	P50	P10
RISC's value conclusion	(2.5)	6.6	12.2
Exchange rate (US\$: \$A)	0.7405	0.7405	0.7405
Value of Tap Oil's other exploration assets (\$Am)	(3.4)	8.9	16.5
BDO's value conclusion (\$Am)	8.9	8.9	16.5
Source: RISC Advisory and BDO			

We note that the value for WA-34-R is based on negotiations currently under way for the sale of this asset.

RISC Advisory's probabilistic adjustment is based on its view that the assets are viewed as a portfolio and within the portfolio there would be a mix of outcomes and hence the low value RISC Advisory has concluded is higher than the arithmetic total of all the low values and the high value RISC Advisory has concluded is lower than the arithmetic total of all the high values.

We consider that the range of values should be adopted as in the range from \$A8.9 million to \$A16.5 million with a preferred value of \$A8.9 million.

The table above indicates a range for the total value of Tap Oil's Other Exploration Assets as assessed by RISC Advisory to be in the range from \$A3.4 million (liability) to \$A16.5 million, with a midpoint value of \$A8.9 million.

We consider that RISC Advisory's midpoint value of \$A8.9 million should be adopted as the low end of the range because that is more reflective of what the portfolio of assets could be sold for. We note that for WA-25-L, RISC Advisory has included an additional abandonment provision of US\$8.2 million, over and above the provision made by Tap Oil (as at December 2017), for the low end of the range. Consequently, we have adopted a valuation range from \$A8.9 million to \$A16.5 million with a preferred value of \$A8.9 million.

### 10.1.4. Value of Tap Oil's other assets and liabilities

Other assets and liabilities of Tap Oil represent the assets and liabilities that have not been specifically addressed in our Sum-of-Parts valuation. From our review of these assets and liabilities outlined in the table below, we do not believe that there is a material difference between their book value and their fair market value, unless an adjustment has been noted.



The table below represents a summary of the assets and liabilities identified:

		Audited as at	Adjusted
Statement of Financial Position	Notes	31-Dec-17	value
		US\$'000	US\$'000
CURRENT ASSETS			
Cash and cash equivalents	a	7,753	15,249
Trade and other receivables	b	6,567	1,570
Inventories	с	6,255	3,097
Current tax assets		61	61
Held for sale assets	d	472	-
Other current assets		343	343
TOTAL CURRENT ASSETS	_	21,451	20,320
NON-CURRENT ASSETS	_		
Property, plant and equipment	е	40,837	39
Exploration and evaluation assets	f	143	-
Deferred tax assets	g	6,056	4,000
TOTAL NON-CURRENT ASSETS	_	47,036	4,039
TOTAL ASSETS	_	68,487	24,359
CURRENT LIABILITIES	_		
Trade and other payables	h	8,000	5,571
Other financial liabilities	i	2,593	-
Liabilities relating to held for sale assets	d	211	-
Provisions	j	1,001	1,001
TOTAL CURRENT LIABILITIES	_	11,805	6,572
NON-CURRENT LIABILITIES	_		
Provisions	j	24,602	12,402
TOTAL NON-CURRENT LIABILITIES		24,602	12,402
TOTAL LIABILITIES	_	36,407	18,974
NET ASSETS (US\$)		32,080	5,385
Exchange rate (US\$: \$A)		0.7405	0.7405
NET ASSETS (\$A)		43,322	7,272

Source: Tap Oil's Audited financial statements for the year ended 31 December 2017 and BDO analysis

We have been advised that there has not been a significant change in the net assets of Tap Oil since 31 December 2017 and that the above assets and liabilities represent their fair market values, other than from the adjustments detailed below. Additionally, nothing has come to our attention as a result of our procedures that would suggest the need for any adjustments, other than as outlined below.



#### Note a) Cash and cash equivalents

We have adjusted the cash and cash equivalents to account for movements in the balance to 30 April 2018. The adjusted cash and cash equivalents is summarised in the table below. The balance at 30 April has been agreed to bank statements and to Mubadala Joint Interest Billing Statements:

Adjusted cash and cash equivalents as at 30 April 2018	US\$'000
Cash and cash equivalents at 31 December 2017	7,753
Add: Net oil proceeds from Manora Oil Field	8,973
Less: Decrease in cash called by Joint venture operator	(2,551)
Less: Other movements	974
Adjusted cash and cash equivalents at 30 April 2018	15,149

Source: Tap Oil's Audited financial statements for the year ended 31 December 2017 and Tap Oil management accounts for April 2018

We have made a further adjustment for the sale proceeds from the sale of TL/2 and TP/7 effective 18 June 2018, an amount of US\$100,000.

Adjusted cash and cash equivalents	US\$'000
Cash and cash equivalents at 30 April 2018	15,149
Add: Proceeds from sale of TL/2 and TP/7	100
Adjusted cash and cash equivalents	15,249

#### Note b) Trade and other receivables

We have adjusted trade and other receivables to account for movements in the balance to 30 April 2018. Trade and other receivables decreased over the period primarily as a result of there being no lifting of oil in April 2018. The trade and other receivables balance at 31 December 2017 included the Manora Oil Field sales debtor of \$5.1 million. The remaining receivable is primarily Tap Oil's share of joint venture debtors which is mainly VAT receivable.

Adjusted trade and other receivables as at 30 April 2018	US\$'000
Trade and other receivables at 31 December 2017	6,567
No Manora Oil Field sales debtor as at 30 April 2018	(5,136)
Movement in share of joint venture debtors	121
Movement in other receivables	18
Adjusted trade and other receivables	1,570

Source: Tap Oil's Audited financial statements for the year ended 31 December 2017 and Tap Oil management accounts for April 2018

#### Note c) Inventories

Tap Oil's management have provided us with the following breakdown of inventories at 30 April 2018:

Inventories at 30 April 2018	US\$'000
Oil in storage - at net realisable value	4,757
Materials and consumables at cost	3,097
Total	7,854



We note that as the inventory relating to oil in storage at net realisable value has been valued separately in our DCF valuation of the Manora Oil Field in section 10.1.1, we have removed the value of this inventory from our assessment of the value of Tap Oil's other assets and liabilities.

Materials and consumables at cost are not reflected in our DCF valuation of the Manora Oil Field so we have adjusted the value of inventory to reflect the value of materials and consumables at cost at 30 April 2018, being US\$3.097 million as set out below. We have no reason to consider that the book value of the materials and consumables differs materially from its market value.

Adjusted inventories as at 30 April 2018	US\$'000
Inventories at 31 December 2017 (oil in storage and materials and consumables at cost)	6,255
Inventories at 30 April 2018 (materials and consumables at cost only)	3,097

#### Note d) Held for sale assets and liabilities relating to held for sale assets

We have adjusted the value of 'held for sale assets' (US\$0.472 million at 31 December 2017) to nil. The held for sale assets related primarily to permit WA-8-L which was sold during the March 2018 quarter.

We have also adjusted value of the liabilities directly associated with the held for sale assets (US\$0.211 million at 31 December 2017) to nil.

#### Note e) Property, plant and equipment

Property plant and equipment of US\$40.837 million at 31 December 2017 primarily related to capitalised development expenditures. The portion of property plant and equipment that related to capitalised development expenditures has been removed from our assessment of the value of other assets and liabilities, as this has been separately reflected in our DCF valuation of the Manora Oil Field and in RISC Advisory's assessment of Tap Oil's other exploration assets. We have therefore adjusted property plant and equipment to US\$0.039 million, which is the net book value of Tap Oil's office equipment and furniture at 31 December 2017.

#### Note f) Exploration and evaluation assets

We have reduced the value to US\$ nil since this balance is covered by the valuation of Tap Oil's interest in the Manora Oil Field and the valuation of Tap Oil's other exploration assets.

#### Note g) Deferred tax assets

We have addressed the value of the (recognised) deferred tax assets of Tap Oil as at 31 December 2017 of US\$6.056 million. These deferred tax assets relate to Thailand tax losses recoverable from future profits from the Manora Oil Field and Australian tax assets being the future PRRT closing down credits from the Woollybutt abandonment. As the Manora tax losses are addressed in the Adjusted Model for the Manora Oil Field, the value of the deferred tax asset value should comprise only the Woollybutt abandonment being an amount of approximately US\$4 million. The Company has PRRT credits available to offset against Woollybutt abandonment costs which are not included in the provision for restoration.



#### Note h) Trade and other payables

We have adjusted the value of trade and other payables to reflect the balance as at 30 April 2018 of US\$5.571 million. We have been provided with the payables listing supporting the trade and other payables balance at 30 April 2018. The reduction in trade and other payables was largely due to:

- joint venture creditors being higher at 31 December 2017 due to the November 2017 drilling campaign; and
- Final settlement payment to Northern Gas Pipeline of US\$0.84 million in March 2018.

Our adjustment to trade and other payables is set out below:

Adjusted trade and other payables as at 30 April 2018	US\$'000
Trade and other receivables at 31 December 2017	8,000
Reduction - Tap Oil share of joint venture creditors	(1,081)
Reduction - trade and other creditors	(1,348)
Adjusted trade and other payables	5,571

Source: Tap Oil's Audited financial statements for the year ended 31 December 2017 and Tap Oil's April 2018 management accounts

#### Note i) Other financial liabilities

Other financial liabilities of US\$2.539 million at 31 December 2017 solely relate to Tap Oil's commodity hedges. These commodity hedges have been valued separately in section 10.1.6 so we have adjusted the value of other financial liabilities to US\$ nil in our assessment of other assets and liabilities.

#### Note j) Provisions

Both current and non-current provisions primarily relate to restoration costs for the Manora Oil Field and for Woollybutt. The restoration costs relating to the Manora Oil Field are reflected in our DCF valuation in section 10.1.1.

The restoration costs for Woollybutt (as determined by RISC Advisory), are reflected in RISC Advisory's assessment of other exploration assets in section 10.1.2. However, RISC Advisory has only included the incremental provision required for Woollybutt, being the provision over and above the existing US\$14.5 million provision included in the financial statements at 31 December 2017 (shown as \$A19.8 million in RISC Advisory's report). Consequently, we have removed only the Manora Oil Field restoration costs provision of US\$10.7 million from our assessment of the value of other assets and liabilities.

The breakdown of current and non-current provisions at provisions at 31 December 2017 is as follows:

Provisions at 31 December 2017	ovisions at 31 December 2017 Restoration costs Employee t		Total
	US\$'000	US\$'000	US\$'000
Current provisions	879	122	1,001
Non-current provisions	24,572	30	24,602

Source: Tap Oil's Audited financial statements for the year ended 31 December 2017



We have made the full adjustment in relation to the Manora Oil Field decommissioning provision through the non-current provisions. Hence, the current provisions balance is unaffected as set out below:

Adjusted current provisions	US\$'000
Current provisions at 31 December 2017	1,001

Source: Tap Oil's Audited financial statements for the year ended 31 December 2017

Our adjustment to non-current provisions is set out below. The adjustments are:

- Exclude the Manora Oil Field provision as addressed in the Adjusted Model;
- Adjust the Woollybutt abandonment provision from the 31 December 2017 amount to the latest Woollybutt decommissioning estimate provided to Tap Oil on 4 July 2018, a reduction in the provision of approximately US\$1.2 million; and
- Eliminate the existing provision of \$A0.3 million in relation to TL/2 and TP/7 which have now been sold with the purchaser assuming the liability in addition to making a cash payment of \$A0.1 million.

Adjusted non-current provisions	US\$'000
Non-current provisions at 31 December 2017	24,602
Less: Tap Oil's restoration costs for the Manora Oil Field	(10,700)
Less: reduction to Woollybutt provision based on the latest estimate	(1,200)
Less: elimination of liability provision relating to TL/2 and TP/7	(300)
Adjusted non-current provisions	12,402

Source: Tap Oil's Audited financial statements for the year ended 31 December 2017

We note that in addition to the Woollybutt provision the remaining current and non-current provisions relate to employee benefits.

#### 10.1.5. Net present value of Tap Oil's Corporate Costs

We note that the Adjusted Model includes general administration costs for the Manora Oil Field. In addition to these, Tap Oil will incur corporate costs through to the end of Tap Oil's interest in the Manora Oil Field, including completion of decommissioning. Management have provided us with estimates of nominal monthly corporate costs. These estimates include:

- Salaries and wages;
- Consultant fees;
- Directors fees
- Compliance costs;
- Travel; and
- Rent.

Following an assessment of management assumptions, we consider the costs provided to be reasonable. We have also assessed the underlying economic assumptions, including the inflation rate. We consider that the Australian inflation rate is the appropriate inflation rate to apply to the corporate costs as all



corporate costs are incurred in Australian dollars. We have assumed an Australian inflation rate of 2.5% per annum.

The net present value of Tap Oil's corporate costs, discounted at the Company's cost of equity is \$11.6 million which is our preferred value.

We note that the Corporate Costs applicable to the 2P scenario will only apply up to December 2023 (completion of decommissioning) because of the economic cut off. Corporate Costs through to December 2025 will apply for the 2P + 2C scenario. The net present value of corporate costs is divided as follows:

Period of application	Net present value of corporate costs Preferred value \$A million
To December 2023	9.8
January 2024 to December 2025	1.8
Total	11.6

#### 10.1.6. Net present value of Tap Oil's hedging arrangements

During 2017 and 2018, Tap Oil entered into a commodity swap hedging program with BP. As at 1 May 2018, Tap Oil has the following hedging arrangements outstanding:

Contract month	Fixed price (Dubai contract)	Quantity (bbl)
Jun-18	US\$57.90/bbl	37,500
Jul-18	US\$57.90/bbl	37,500
Aug-18	US\$57.90/bbl	37,500
Sep-18	US\$58.40/bbl	22,500
Nov-18	US\$58.40/bbl	22,500

Source: Mark-to-Market Report prepared by BP

Management has provided us with a mark-to-market report prepared by BP ('Mark-to-Market Report') for the value of Tap Oil's swaps at 30 April 2018. We have discounted the outcome identified in the Mark-to-Market Report for each month's hedging.

We note that the Mark-to-Market Report uses forecasts for the Dubai Contract price which are slightly different to those we have adopted in the Adjusted Model but the difference in the overall net present value is not material.

The total net present value cost of the hedging arrangements is valued at \$A2.4 million.

We have considered the sensitivity of the net present value cost of the hedging arrangements to changes in the oil price as per section 10.1.1.3 above. On this basis we have assessed the range of the cost of hedging arrangements as between \$A1.7 million and \$A3.2 million with a preferred value of \$A2.4 million. We note that the cost of the hedging arrangements is less for the low end of the range since it reflects a lower oil price.



#### 10.1.7. Number of shares on issue

The number of Tap shares on issue is 425,967,534. There has been no change since 31 December 2017.

We have considered the impact of the possible future vesting of a maximum of 11,504,906 shares arising from Performance Rights and Retention Rights currently on issue. Although we consider this unlikely, the impact would be to reduce the range for the value per share to a range from \$A0.077 to \$A0.117.

# 10.2 Quoted Market Prices for Tap Oil Securities

#### 10.2.1 QMP Valuation

To provide a comparison to the valuation of Tap Oil in Section 10, we have also assessed the quoted market price for a Tap Oil share. The quoted market value of a company's shares is reflective of a minority interest. A minority interest is an interest in a company that is not significant enough for the holder to have an individual influence in the operations and value of that company.

RG 111.11 suggests that when considering the value of a company's shares for the purposes of a control transaction, the expert should consider a premium for control. An acquirer could be expected to pay a premium for control due to the advantages they will receive should they obtain 100% control of another company. These advantages include the following:

- control over decision making and strategic direction;
- access to underlying cash flows;
- control over dividend policies; and
- access to potential tax losses.

Whilst Risco may not be obtaining 100% of Tap Oil, RG 111 states that the expert should calculate the value of a target's shares as if 100% control were being obtained. The expert can then consider an acquirer's practical level of control when considering reasonableness. Reasonableness has been considered in Section 13.

Therefore, our calculation of the quoted market price of a Tap Oil share including a premium for control has been prepared in two parts. The first part is to calculate the quoted market price on a minority interest basis. The second part is to add a premium for control to the minority interest value to arrive at a quoted market price value that includes a premium for control.

#### 10.2.2 Minority interest value

Our analysis of the quoted market price of a Tap Oil share is based on the pricing prior to the announcement of the Offer. This is because the value of a Tap Oil share after the announcement may include the effects of any change in value as a result of the Offer. However, we have considered the value of a Tap Oil share following the announcement when we have considered reasonableness in Section 13.

The Offer was announced to the market on 2 May 2018. Therefore, the following chart provides a summary of the share price movement over the 12 months to 1 May 2018, which was the last trading day prior to the announcement of the Offer.





Source: Bloomberg

The daily price of Tap Oil shares from 1 May 2017 to 1 May 2018 has ranged from a low of \$0.051 on 11 September 2017, 21 September 2017 and 22 September 2017 to a high of \$0.075 on 1 May 2017. The highest single day of trading was on 20 March 2018, when 26,645,374 shares were traded.

During the 12 months to 1 May 2018, a number of announcements were made to the market. The key announcements are set out below:

Date	Announcement	Closing Share Closing Share Pr Price Following Three Days After Appouncement Appouncement	
		\$ (movement)	\$ (movement)
30/04/2018	Manora Oil Field - Manora 8 Exploration Well	0.060   7%	0.075 🔺 25%
30/04/2018	March 2018 Quarterly Report	0.060   7%	0.075 🔺 25%
23/04/2018	Notice of Annual General Meeting/Proxy Form	0.057 - 5%	0.056 - 2%
05/04/2018	Appendix 4G	0.056 - 3%	0.058 🔺 4%
05/04/2018	Corporate Governance Statement	0.056 - 3%	0.058 🔺 4%
05/04/2018	Annual Report to shareholders	0.056 - 3%	0.058 🔺 4%
22/03/2018	Ceasing to be a substantial holder	0.054 • 0%	0.058   7%
21/03/2018	Change in substantial holding	0.054 • 0%	0.058 🔺 7%
21/03/2018	Change in substantial holding	0.054 • 0%	0.058   7%
21/03/2018	Change in substantial holding	0.054 • 0%	0.058 🔺 7%
28/02/2018	2017 Appendix 4E and Financial Report	0.055 • 0%	0.052 - 5%
23/02/2018	Appointment of Chairman	0.053 • 0%	0.055 🔺 4%
07/02/2018	Appointment of Director	0.054 • 0%	0.055 🔺 2%
06/02/2018	Change in substantial holding	0.054 🕶 10%	0.055 🔺 2%
01/02/2018	Initial Director's Interest Notice x 3	0.060 • 0%	0.054 🕶 10%
01/02/2018	Appointment of Director	0.060 • 0%	0.054 🕶 10%
01/02/2018	Final Director's Interest Notice x 4	0.060 • 0%	0.054 🕶 10%
01/02/2018	Withdrawal of General Meeting and Board Changes	0.060 • 0%	0.054 🕶 10%



Date	Announcement	Closing Share Price Following Announcement	Closing Share Price Three Days After Announcement	
		\$ (movement)	\$ (movement)	
29/01/2018	December 2017 Quarterly Report	0.065   3%	0.060 - 8%	
22/01/2018	Change of registered office	0.059   2%	0.063   7%	
04/01/2018	Appendix 3B	0.060   2%	0.060 • 0%	
20/12/2017	Notice of General Meeting/Proxy Form	0.055 👻 2%	0.056 🔺 2%	
13/12/2017	TOV: TAP Panel Declines to Make Declaration	0.055 - 2%	0.056 • 2%	
04/12/2017	Notice of intention to move additional resolution	0.056 • 0%	0.057 🔺 2%	
04/12/2017	Final drilling update on Manora-6 and Manora 6-ST	0.056 • 0%	0.057    2%	
27/11/2017	TOV: Tap Panel Receives Application	0.060 🔺 2%	0.059 - 2%	
23/11/2017	Letter to Shareholders	0.059 - 13%	0.059 • 0%	
21/11/2017	Notice received to appoint and remove Directors	0.070 🔺 8%	0.059 - 16%	
20/11/2017	Final Drilling Update Ladawan-1	0.065 - 7%	0.059 • 9%	
09/11/2017	Commodity Hedging Program	0.069 - 5%	0.072 🔺 4%	
06/11/2017	Manora Oil Field development drilling success	0.071 🔺 1%	0.069 • 3%	
30/10/2017	September 2017 Quarterly Report	0.064    2%	0.068   6%	
11/10/2017	Manora Oil Field drilling campaign commences	0.052 - 2%	0.054 🔺 4%	
09/10/2017	Commodity Hedging Program	0.054 🔺 4%	0.053 👻 2%	
28/09/2017	Borrowing base facility repaid	0.059 ▲ 5%	0.055 🔻 7%	
28/08/2017	Appointment of Joint Company Secretary	0.053 - 2%	0.056 🔺 6%	
25/08/2017	Half Year Report & Appendix 4D	0.054 • 2%	0.056 🔺 4%	
07/08/2017	Employment Terms for Executive Chairman	0.055 - 2%	0.055 • 0%	
31/07/2017	Presentation	0.063   3%	0.060 - 5%	
28/07/2017	June 2017 Quarterly Report	0.061 - 5%	0.060 - 2%	
15/06/2017	Change of Director's Interest Notice	0.062 - 3%	0.061 - 2%	
15/06/2017	Appendix 3B	0.062 - 3%	0.061 - 2%	
14/06/2017	Sale of WA-8-L	0.064    3%	0.061 - 5%	

Source: Bloomberg

On 28 July 2017, Tap Oil released its June 2017 Quarterly Report. The report highlighted a further debt repayment made during the quarter, and the signing of a sale and purchase agreement for the sale of its 20% interest in permit WA-8-L for cash consideration. The share price decreased by 5% on the day of the announcement, to close at \$0.061, before decreasing a further 2% over the subsequent three-day trading period to close at \$0.060.

On 31 July 2017, Tap Oil released a corporate presentation, which provided an overview of the Manora Oil Field project and the Company's growth strategy. On the day of the announcement the share price increased by 3%, to close at \$0.063, before decreasing by 5% over the subsequent three-day trading period to close at \$0.060.



On 28 August 2017, Tap Oil announced the appointment of Ms Shannon Coates as joint company secretary. On the date of the announcement the share price decreased by 2% to close at \$0.053, before increasing by 6% over the subsequent three-day trading period to close at \$0.056.

On 28 September 2017, Tap Oil announced that it had made the final debt payment of US\$3.4 million under the BNP Facility. On the date of the announcement the share price increased by 5% to close at \$0.059, before decreasing by 7% over the subsequent three-day trading period to close at \$0.055.

On 9 November 2017, Tap Oil announced that it had entered into a commodity hedging program with BP, to hedge a total of 112,500 bbls of crude oil production over the three-month period from June 2018 to August 2018. On the date of the announcement the share price decreased by 5%, to close at \$0.069, before increasing by 4% over the subsequent three-day trading period to close at \$0.072.

On 20 November 2017, Tap Oil announced that the drill results from exploration drilling at the Ladawan-1 exploration well had been evaluated and were not viewed as commercial. On the date of the announcement the share price decreased by 7%, to close at \$0.065, before decreasing by a further 9% over the subsequent three-day trading period to close at \$0.059.

On 21 November 2017, Tap Oil advised that it had received a notice from Risco of its intention to seek the removal of Mr James Menzies, Mr Peter Mansell and Mr Tom Soulsby as directors of Tap Oil, and the appointment of Mr Chris Newton and Mr Govert van Ek as directors Tap Oil. On the date of the announcement the share price increased by 8%, to close at \$0.070, before decreasing by 16% over the subsequent three-day trading period to close at \$0.059.

On 23 November 2017, Tap Oil released a letter to shareholders (from the non-aligned directors), in response to the Member's Statement provided to Tap Oil outlining its intention to move resolutions regarding the removal and appointment of directors. On the date of the announcement the share price decreased by 13% to close at \$0.059.

On 22 January 2018, Tap Oil announced that it had changed its principal place of business. On the date of the announcement the share price increased by 2% to close at \$0.059, before increasing a further 7% over the subsequent three-day trading period, to close at \$0.063.

On 29 January 2018, Tap Oil released its December 2017 Quarterly Report, which highlighted the Company's average realised prices for the quarter, additional hedging programs and drilling and exploration activity undertaken. On the date of the announcement the share price increased 3% to close at \$0.065, before decreasing by 8% over the subsequent three-day trading period, to close at \$0.060.

On 6 February 2018, Tap Oil released a change in substantial holding notice for Prudential Plc and its subsidiary companies ('**Prudential**'). On the date of the announcement the share price declined by 10%, to close at \$0.054, before increasing by 2% over the subsequent three-day trading period to close at \$0.055.

On 28 February 2018, the Company released its 2017 Appendix 4E and Financial Report. On the date of the announcement the share price remained unchanged to close at \$0.055, before decreasing by 5% over the subsequent three-day trading period to close at \$0.052.

On 21 March 2018, Tap Oil released notices for a change in substantial holding for Prudential, Risco and Northern Gulf. On the date of the announcements, the share price remained unchanged to close at \$0.054, before increasing by 7% over the subsequent three-day trading period to close at \$0.058.



On 22 March 2018, Tap Oil released a notice of ceasing to be a substantial holder for Prudential. On the date of the announcement the share price remained unchanged at \$0.054, before increasing by 7% over the subsequent three-day trading period to close at \$0.058.

On 23 April 2018, Tap Oil released a notice of Annual General Meeting ('AGM'), which outlined the resolutions to be considered at the AGM, including the adoption of the remuneration report, the election of Mr Chris Newton as a Director, the election of Dr Govert van Ek as a Director and the election of Mr Kamarudin Baba as a Director. On the date of the announcement the share price decreased by 5% to close at \$0.057, before decreasing a further 2% over the subsequent three-day trading period to close at \$0.056.

On 30 April 2018, Tap Oil released the March 2018 Quarterly Report and an update on planned exploration at the Manora Oil Field, which noted the approval of the drilling of exploration well Manora 8. On the date of the announcement the share price increased by 7%, to close at \$0.060.

To provide further analysis of the market prices for a Tap Oil share, we have also considered the volume weighted average price ('VWAP') for 10, 30, 60 and 90 day periods to 1 May 2018.

Share Price per unit	01-May-18	10 Days	30 Days	60 Days	90 Days
Closing price	\$0.060				
Volume weighted average price		\$0.058	\$0.056	\$0.055	\$0.056

Source: Bloomberg and BDO analysis

The above weighted average prices are prior to the date of the announcement of the Offer, to avoid the influence of any increase in price of Tap Oil shares that has occurred since the Offer was announced.

An analysis of the volume of trading in Tap Oil shares for the twelve months to 1 May 2018 is set out below:

Trading days	Share price	Share price	Cumulative volume	As a % of
	low	high	traded	Issued capital
1 Day	\$0.059	\$0.061	159,072	0.04%
10 Days	\$0.056	\$0.062	1,909,475	0.45%
30 Days	\$0.051	\$0.062	18,926,734	4.44%
60 Days	\$0.051	\$0.062	54,807,323	12.87%
90 Days	\$0.051	\$0.065	71,617,411	16.81%
180 Days	\$0.051	\$0.075	99,946,373	23.46%
1 Year	\$0.051	\$0.075	117,911,000	27.68%

Source: Bloomberg, BDO analysis

The table indicates that Tap Oil's shares display a relatively low level of liquidity with approximately 16.81% of the Company's current issued capital being traded in the 90-day period prior to the announcement of the Offer. However, during this period Tap Oil's shares exhibited unusual trading with 26,645,374 shares traded on 20 March 2018. The next highest day of trading was on 2 February 2018, when 5,098,178 shares were traded. We consider that the volume traded on 20 March 2018 appears to be an extreme outlier.



Excluding this day from our analysis results in Tap Oil shares exhibiting a lower level of liquidity, with only 10.56% of the Company's current issued capital being traded in the 90-day period prior to the announcement of the Offer.

RG 111.69 states that for the quoted market price methodology to be an appropriate methodology there needs to be a 'liquid and active' market in the shares and allowing for the fact that the quoted price may not reflect their value should 100% of the securities not be available for sale. We consider the following characteristics to be representative of a liquid and active market:

Regular trading in a company's securities;

- Approximately 1% of a company's securities are traded on a weekly basis;
- The spread of a company's shares must not be so great that a single minority trade can significantly affect the market capitalisation of a company; and
- There are no significant but unexplained movements in share price.

A company's shares should meet all of the above criteria to be considered 'liquid and active', however, failure of a company's securities to exhibit all of the above characteristics does not necessarily mean that the value of its shares cannot be considered relevant.

In the case of Tap Oil, we do not consider there to be a liquid and active market for Tap Oil shares. Despite 16.81% of Tap Oil's current issued capital being traded over the 90-day period prior to the announcement of the Offer, we consider the 10.56%, which removes the unusual trading on exhibited on 20 March 2018, to provide a more accurate reflection of the Company's liquidity. This is supported by the volume of trading for the full year to 1 May 2018 representing 27.68% of Tap Oil's current issued capital or 21.43% excluding the unusually high level of trading on 20 March 2018.

Our assessment is that a range of values for Tap Oil shares based on market pricing, after disregarding post announcement pricing, is between \$0.056 and \$0.060.

#### 10.2.3 Control Premium

We have reviewed the control premia paid by acquirers of oil and gas companies listed on the ASX. We have summarised our findings below:

Year	Number of Transactions	Average Deal Value (\$Am)	Average Control Premium (%)
2018	1	634.38	6.26
2017	2	6.11	100.03
2016	1	339.72	21.32
2015	4	111.40	14.60
2014	4	684.20	64.78
2013	3	65.82	31.02
2012	2	222.52	49.85
2011	4	200.16	34.70
2010	3	1265.25	56.89

#### Oil and gas companies:

Source: Bloomberg



Given the limited number of transactions since 2010 involving the acquisition of ASX listed oil and gas companies, we have also reviewed the control premiums paid by acquirers for all ASX listed companies, as set out in the table below:

Year	Number of Transactions	Average Deal Value (\$Am)	Average Control Premium (%)
2018	10	287.74	43.92
2017	26	1089.67	45.10
2016	42	718.51	49.58
2015	33	850.04	33.23
2014	45	518.59	40.00
2013	41	128.21	50.99
2012	52	472.10	51.68
2011	68	891.85	44.43
2010	53	574.61	44.37

#### All ASX listed companies:

Source: Bloomberg

The mean and median of the entire data sets, respectively, comprising control transactions for oil and gas companies and all ASX listed companies from 2010 onwards, are set out below:

	Oil and gas companies		All ASX listed companies	
Entire Data Set Metrics	Average Deal Value (\$Am)	Average Control Premium (%)	Average Deal Value (\$Am)	Average Control Premium (%)
Mean	391.98	43.64	631.69	45.25
Median	69.07	40.76	105.97	35.75

#### Source: Bloomberg

In arriving at an appropriate control premium to apply we note that observed control premiums can vary due to the:

- Nature and magnitude of non-operating assets;
- Nature and magnitude of discretionary expenses;
- Perceived quality of existing management;
- Nature and magnitude of business opportunities not currently being exploited;
- Ability to integrate the acquiree into the acquirer's business;
- Level of pre-announcement speculation of the transaction;
- Level of liquidity in the trade of the acquiree's securities.

The table above indicates that the long term average of announced control premiums paid by acquirers of Oil and Gas companies listed on the ASX and all ASX listed companies is approximately 44% and 45%, respectively. However, in assessing the sample of transactions included in the table, we noted transactions that appear to be extreme outliers. These include one oil and gas transaction, and 25 all ASX listed company transactions in which the announced premium was in excess of 100%.



In a population where there are extreme outliers, the median often represents a superior measure of central tendency compared to the mean. We note that the median announced control premium over the review period was approximately 41% for oil and gas transactions and 36% for all ASX listed companies.

In determining a control premium most appropriate for Tap Oil, we considered a number of factors. Factors we have considered include:

- Tap Oil, while revenue generating, has made sustained losses;
- Tap Oil has had recent board instability; and
- Tap Oil only has a 30% interest in the Manora Oil Field.

Based on the above analysis, we consider an appropriate premium for control to be paid by Risco is between 30% and 40%, with a midpoint of 35%.

#### 10.2.4 Quoted market price including control premium

Applying a control premium to Tap Oil's quoted market share price results in the following quoted market price value including a premium for control:

	Low	Low Midpoint	
	\$	\$	\$
Quoted market price value	0.056	0.058	0.060
Control premium	30%	35%	40%
Quoted market price valuation including a premium for control	0.073	0.078	0.084

Source: BDO analysis

Therefore, our valuation of a Tap Oil share based on the quoted market price method and including a premium for control is between \$0.073 and \$0.084, with a midpoint value of \$0.078.

#### 10.3 Assessment of the value of a Tap Oil share prior to the Offer

The results of the valuations performed are summarised in the table below:

		Low value	Preferre d value	High value
	Ref	\$	\$	\$
Sum-of-parts value	10.1	0.079	0.091	0.120
Quoted market price value	10.2	0.073	0.078	0.084

Source: BDO analysis

We note that the value under the QMP methodology is slightly lower than the value obtained through the Sum-of-Parts methodology. The difference in values may be explained by the fact that the QMP stops at the announcement date of the Offer and does not take into account any of the drilling results that have since been released by the Company. The QMP value also reflects investors' perception of the future prospects of the Company's oil assets particularly its interest in the Manora Oil Field. However, the Sum-of-Parts valuation is based on a current in-depth assessment of Tap Oil's key assets and liabilities including input from RISC Advisory as independent technical expert.



We consider the Sum-of-Parts methodology to be the most appropriate method to value a Tap Oil share as it reflects the actual value that can be achieved on a sale of the Company's oil assets, which is a more accurate reflection of the fair market value of these assets.

Based on the results above we consider the value of a Tap Oil share to be between \$0.079 and \$0.120 with a preferred value of \$0.091.



# 11. Valuation of the Offer Consideration

Under the Offer, Shareholders will receive \$0.07 cash for each Tap Oil share they hold.

# 12. Is the Offer fair?

The value of a Tap Oil share prior to the Offer, on a control basis and the Offer consideration per share is set out below:

	Ref	Low value	Preferred value	High value
		\$	\$	\$
Value of a Tap Oil share prior to the Offer on a control basis	10.3	0.079	0.091	0.120
Value of Offer consideration	11	0.070	0.070	0.070

Source: BDO analysis

We note from the table above that the value of the Offer consideration is less than the preferred value of a Tap Oil share prior to the Offer on a control basis. Therefore, we consider that the Offer is not fair.

The above valuation ranges are graphically presented below:





Source: BDO analysis



# 13. Is the Offer reasonable?

### 13.1 Advantages of accepting the Offer

If the Offer is accepted, in our opinion, the potential advantages to Shareholders include the following:

# 13.1.1. The Offer provides Shareholders with an opportunity to realise their investment with certainty

As set out in Section 10.2, we consider that the Company's shares display a low level of liquidity. The Offer consideration of cash provides Shareholders with an opportunity to realise their investment in Tap Oil and utilise the cash received for other purposes such as alternative investments.

#### 13.1.2. The Offer is not subject to any minimum defeating conditions

Under the terms of the Offer it is not subject to any minimum defeating conditions. Therefore, Shareholders are free to accept the Offer regardless of whether other Shareholders decide to accept or reject the Offer. This independence provides Shareholders with certainty of a cash return on their investment, should they choose to accept the Offer.

# 13.1.3. The Offer is at a premium to the Company's last traded price prior to the announcement of the Offer

The Company's closing price on the last trading day prior to the announcement of the Offer was \$0.060. Therefore, the Offer consideration represents a 16.67% premium to the last quoted price of a Tap Oil share. However, as explained in section 10.2.3 this is less than the level of control premium that in our opinion is appropriate for Shareholders to receive.

We note that subsequent to the announcement the share price has remained above the Offer consideration of \$0.070.

# 13.1.4. Shareholders will no longer be exposed to risks associated with being an investor in Tap Oil

All organisations are exposed to risk, including strategic, financial, operational, environmental and compliance risks. Volatile oil markets, recent board instability and operational challenges at the Manora Oil Field are some of the specific risks Tap Oil Shareholders have been exposed to and may continue to be exposed to. Those Shareholders who accept the Offer will no longer be exposed to the specific risks of being an investor in Tap Oil.

### 13.2 Disadvantages of Accepting the Offer

If the Offer is accepted, in our opinion, the potential disadvantages to Shareholders include the following:

# 13.2.1. Shareholders will be unable to participate in the potential upside from the Company's operations

If Shareholders accept the Offer, they will be unable to participate in the prospective opportunities, including those from the additional areas of the Manora Oil Field currently being assessed.



# 13.2.2. The Offer price is at a discount to the Company's recently traded prices

Following the announcement of the Offer, the market price of a Tap Oil share on the ASX has remained above the Offer consideration of \$0.07 so the current Offer price is at a discount to post announcement market prices. However, we note that on the day of the announcement of the Offer, the Offer price represented a 16.67% premium to the last quoted price of a Tap Oil share, being \$0.06.

# 13.2.3. Shareholders may face potential tax implications from selling their shares in response to the Offer

If Shareholders accept the Offer, they may face potential tax implications such as crystallising a capital gains tax liability on the disposal of their shares. Individual shareholders should consult their tax advisers in relation to their personal circumstance.

# 13.3 Consequences of not accepting the Offer

# 13.3.1. Shareholders who reject the Offer could become minority shareholders in a company in which Risco would have a controlling interest or practical control

As there is no minimum acceptance condition under the terms of the Offer, Shareholders will be able to accept the Offer for their respective shareholding in Tap Oil, regardless of the decision of other shareholders. Consequently, Shareholders who reject the Offer may be left holding a minority interest shareholding in a Company that Risco has a controlling interest in or otherwise has acquired practical control.

The implications of the various levels of control that Risco may obtain are outlined below. However, as detailed in Section 4, the maximum interest that Risco can acquire under the Offer is 74.5%.

Controlling interest	Company Influence
>5%	ability to requisition a general meeting of the Company
>10%	ability to prevent a compulsory acquisition
>25%	ability to block special resolutions
>50%	ability to block and pass general resolutions
>75%	ability to pass special resolutions
>90%	ability to initiate a compulsory takeover

Given Tap Oil's existing share register, it is possible that Risco may acquire practical control of Tap Oil with a shareholding that is significantly less than 50% of Tap Oil's issued share capital.

Furthermore, the presence of a shareholder with such a significant holding in the Company's issued capital may reduce the liquidity of trading in Tap Oil's shares, as well as reducing the likelihood of a takeover offer in the future. The potential decline in liquidity and diminished likelihood of receiving a control premium may reduce the attractiveness of a Tap Oil share and ultimately the value realisable by Shareholders.



# 13.3.2. Franking credits may have value for particular shareholders depending on their tax situation

Tap Oil has franking credits of approximately \$A70 million. Franked dividends may be paid by Tap Oil which would have value for particular shareholders depending on their individual tax situation. Tap Oil is currently in a net cash position having repaid all debt previously owed.

#### 13.4 Other considerations

#### 13.4.1. Post announcement pricing

We have analysed the movements in Tap Oil's share price since the Offer was announced. A graph of the Company's share price and trade volume leading up to and following the announcement of the Offer is set out below:



#### Source: Bloomberg

The daily price of Tap Oil shares from 1 January 2018 to 2 July 2018 has ranged from \$0.052 on 9 March 2018 to \$0.083 on 5 June 2018. On the date the Offer was announced, the share price closed at \$0.072, up from the previous day's closing price of \$0.061. Following the announcement of the Offer the share price has ranged from \$0.072 to \$0.083. This indicates that market participants are willing to purchase shares in Tap Oil at a premium to Risco's Offer price. We also note that during this period a number of announcements were made to the market, including drill results from the Manora-8, Manora-8ST1, MNA-20 and MNA-21 wells.

The table below details the VWAP of Tap Oil shares for the 10-day, 20-day and 30-day periods subsequent to the announcement of the Offer on 2 May 2018.

Share Price per unit	02-May-18	10 Days	20 Days	30 Days
Closing price	\$0.072			
Volume weighted average price		\$0.073	\$0.074	\$0.075
Source: Bloomberg and BDO analysis				



Following the announcement of the Offer, Tap Oil's share price has increased from a VWAP of \$0.056 over the 30 days prior to the announcement of the Offer, to \$0.075 over the 30 days following the announcement of the Offer.

#### 13.4.2. Alternative proposal

We are unaware of any alternative proposal that might offer Shareholders a premium over the Offer consideration. With two shareholders holding over 50% between them, we consider an alternative offer to be unlikely unless it comes from the other major shareholder or has the support of at least one major shareholder. We have seen no indication of such an offer.

# 14. Conclusion

We have considered the terms of the Offer as outlined in the body of this report and have concluded that the Offer is neither fair nor reasonable to the Shareholders of Tap Oil.

# 15. Sources of information

This report has been based on the following information:

Draft Supplementary Target's Statement on or about the date of this report;

Audited financial statements of Tap Oil for the years to 31 December 2015, 2016 and 2017;

Management accounts for Tap Oil for the four months to 30 April 2018;

Quarterly report of Tap Oil for the quarter to 31 March 2018;

Independent Technical Assessment and Valuation Report prepared by RISC Advisory and dated 10 July 2018;

Share registry information; Reserve Bank of Australia; Bank of Thailand; Bloomberg; Consensus Economics; International Energy Agency; OPEC; S&P Capital IQ; IBIS World; and Discussions with Directors and Management of Tap Oil.



# 16. Independence

BDO Corporate Finance (WA) Pty Ltd is entitled to receive a fee of \$60,000 (excluding GST and reimbursement of out of pocket expenses). The fee is not contingent on the conclusion, content or future use of this Report. Except for this fee, BDO Corporate Finance (WA) Pty Ltd has not received and will not receive any pecuniary or other benefit whether direct or indirect in connection with the preparation of this report.

BDO Corporate Finance (WA) Pty Ltd has been indemnified by Tap Oil in respect of any claim arising from BDO Corporate Finance (WA) Pty Ltd's reliance on information provided by Tap Oil, including the non-provision of material information, in relation to the preparation of this report.

Prior to accepting this engagement BDO Corporate Finance (WA) Pty Ltd has considered its independence with respect to Tap Oil and Risco and any of their respective associates with reference to ASIC Regulatory Guide 112 'Independence of Experts'. In BDO Corporate Finance (WA) Pty Ltd's opinion it is independent of Tap Oil and Risco and their respective associates.

A draft of this report was provided to Tap Oil and its advisors for confirmation of the factual accuracy of its contents. No significant changes were made to this report as a result of this review.

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# 17. Qualifications

BDO Corporate Finance (WA) Pty Ltd has extensive experience in the provision of corporate finance advice, particularly in respect of takeovers, mergers and acquisitions.

BDO Corporate Finance (WA) Pty Ltd holds an Australian Financial Services Licence issued by the Australian Securities and Investment Commission for giving expert reports pursuant to the Listing rules of the ASX and the Corporations Act.

The persons specifically involved in preparing and reviewing this report were Sherif Andrawes and Adam Myers of BDO Corporate Finance (WA) Pty Ltd. They have significant experience in the preparation of independent expert reports, valuations and mergers and acquisitions advice across a wide range of industries in Australia and were supported by other BDO staff.

Sherif Andrawes is a Fellow of the Institute of Chartered Accountants in England & Wales and a Fellow of Chartered Accountants Australia & New Zealand. He has over 30 years' experience working in the it and corporate finance fields with BDO and its predecessor firms in London and Perth. He has been responsible for over 300 public company independent expert's reports under the Corporations Act or ASX Listing Rules and is a CA BV Specialist. These experts' reports cover a wide range of industries in Australia with a focus on companies in the natural resources sector. Sherif Andrawes is the Chairman of BDO in Western Australia, Corporate Finance Practice Group Leader of BDO in Western Australia and the Global Natural Resources Leader for BDO.

Adam Myers is a member of the Chartered Accountants Australia & New Zealand. Adam's career spans 20 years in the it and Assurance and Corporate Finance areas. Adam is a CA BV Specialist and has



considerable experience in the preparation of independent expert reports and valuations in general for companies in a wide number of industry sectors.

# 18. Disclaimers and consents

This report has been prepared at the request of Tap Oil for inclusion in a Supplementary Target Statement which will be sent to all Tap Oil Shareholders. The independent directors of Tap Oil engaged BDO Corporate Finance (WA) Pty Ltd to prepare an independent expert's report to consider the Offer from Risco.

BDO Corporate Finance (WA) Pty Ltd hereby consents to this report accompanying the above Supplementary Target's Statement. Apart from such use, neither the whole nor any part of this report, nor any reference thereto may be included in or with, or attached to any document, circular resolution, statement or letter without the prior written consent of BDO Corporate Finance (WA) Pty Ltd.

BDO Corporate Finance (WA) Pty Ltd takes no responsibility for the contents of Supplementary Target's Statement other than this report.

We have no reason to believe that any of the information or explanations supplied to us are false or that material information has been withheld. It is not the role of BDO Corporate Finance (WA) Pty Ltd acting as an independent expert to perform any due diligence procedures on behalf of the Company. The Directors of the Company are responsible for conducting appropriate due diligence in relation to Tap Oil. BDO Corporate Finance (WA) Pty Ltd provides no warranty as to the adequacy, effectiveness or completeness of the due diligence process.

The opinion of BDO Corporate Finance (WA) Pty Ltd is based on the market, economic and other conditions prevailing at the date of this report. Such conditions can change significantly over short periods of time.

The forecasts provided to BDO Corporate Finance (WA) Pty Ltd by Tap Oil and its advisers are based upon assumptions about events and circumstances that have not yet occurred. Accordingly, BDO Corporate Finance (WA) Pty Ltd cannot provide any assurance that the forecasts will be representative of results that will actually be achieved. We note that the forecasts provided do not include estimates as to the effect of any future emissions trading scheme should it be introduced as it is unable to estimate the effects of such a scheme at this time.

With respect to taxation implications it is recommended that individual Shareholders obtain their own taxation advice, in respect of the Offer, tailored to their own particular circumstances. Furthermore, the advice provided in this report does not constitute legal or taxation advice to the Shareholders of Tap Oil or any other party.

BDO Corporate Finance (WA) Pty Ltd has also considered and relied upon independent valuations for exploration assets held by Tap Oil.

The valuer engaged for the mineral asset valuation, RISC Advisory, possess the appropriate qualifications and experience in the industry to make such assessments. The approaches adopted and assumptions made in arriving at their valuation is appropriate for this report. We have received consent from the valuer for the use of their valuation report in the preparation of this report and to append a copy of their report to this report.



The statements and opinions included in this report are given in good faith and in the belief that they are not false, misleading or incomplete.

The terms of this engagement are such that BDO Corporate Finance (WA) Pty Ltd is required to provide a supplementary report if we become aware of a significant change affecting the information in this report arising between the date of this report and prior to the date of the meeting or during the offer period.

Yours faithfully BDO CORPORATE FINANCE (WA) PTY LTD

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Sherif Andrawes Director

MM. Algers

Adam Myers Director


# Appendix 1 - Glossary of Terms

Reference	Definition
2C Resources	The Contingent Resources for the Manora Oil Field
2P Reserves	The estimated Proven and Probable Reserves for the Manora Oil Field
2P+2C Scenario	An assessment in relation to the scenario for 2P Reserves plus 2C Resources
The Act	The Corporations Act 2001 Cth
Additional Manora Assets	The value of Tap Oil's interest in areas within the Manora Oil Field currently being explored and that are not included in the Model or the Adjusted Model
The Adjusted Model	The BDO adjusted Model
AGM	Annual General Meeting
Antiope	The Antiope discovery, covered by Retention Lease WA-49-R
APES 225	Accounting Professional & Ethical Standards Board professional standard APES 225 'Valuation Services'
ASIC	Australian Securities and Investments Commission
ASX	Australian Securities Exchange
BDO	BDO Corporate Finance (WA) Pty Ltd
BHP	BHP Billiton Limited
Bianchi	The Bianchi-1 gas discovery, discovered in 2013
Bidder's Statement	The Bidder's Statement from Risco in relation to the Offer
BNP Facility	A borrowing base facility with BNP Paribas and Siam Commercial Bank
вот	The Bank of Thailand
ВР	BP Singapore Pte Limited
The Company	Tap Oil Limited
Corporations Act	The Corporations Act 2001 Cth
DCF	Discounted Future Cash Flows



Reference	Definition
DOAA	Deed of Assignment and Assumption
EBIT	Earnings before interest and tax
EBITDA	Earnings before interest, tax, depreciation and amortisation
FME	Future Maintainable Earnings
FOS	Financial Ombudsman Service
FSO	Floating storage and offloading
GDP	Gross domestic product
Independent Directors	The independent directors of Tap Oil, being Mr Damon Neaves and Mr Govert Van Ek
The Joint Venture	Tap Oil, Northern Gulf and Mubadala all have a participating interest in the $G1/48$ concession.
JORC Code	The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (2012 Edition)
LTI	Long term incentive
m <sup>3</sup>	Cubic meters
M-7	Block M-7, located in the offshore Moattama Basin in Myanmar
mb/d	Million barrels per day
MMBTU	Million British Thermal Units
mmboe/d	Million barrels of oil equivalent per day
Manora-8	The Manora-8 exploration well drilled to explore for hydrocarbons in the primary producing sands of Manora
Manora-8ST1	the Manora-8ST1 appraisal well drilled to appraise the 300-500 series reservoirs
MNA-20	Development well drilled with the primary objective of providing a southern updip production point in the 490-60 reservoir
MNA-21	Development well drilled with the objective of providing a northern updip production point in the 490-60 reservoir
Maitland	The Maitland gas discovery, contained within the WA-33-R Retention Lease



Reference	Definition
Mark-to-Market Report	A mark-to-market report prepared by BP for the value of Tap Oil's swaps at 30 April 2018
The Model	Detailed cash flow model for the Manora Oil Field prepared by the management of Tap Oil with the assistance of advisors
MOGE	Myanmar Oil and Gas Enterprise
Mubadala	Mubadala Petroleum (Thailand) Limited
NAV	Net Asset Value
ΝΟΡΤΑ	National Offshore Petroleum Titles Administrator
Northern Gulf	Northern Gulf Petroleum Holdings Limited
NPV	Net present value
Offer	Risco's unconditional on-market all cash offer of \$0.07 per Tap Oil share
Offer Consideration	Cash of \$0.07 per share
OPEC	Organisation of the Petroleum Exporting Countries
The Operator	Mubadala operates the G1/48 concession and the Manora Oil field
Post Announcement Trading Period	2 May 2018 to 2 July 2018
Prometheus	The Prometheus gas discovery, covered by the WA-34-R Retention Lease
Prudential	Prudential Plc
PTT	PTT Public Company Limited
QMP	Quoted market price
RBA	Reserve Bank of Australia
Regulations	Corporations Act Regulations 2001 (Cth)
Our Report	This Independent Expert's Report prepared by BDO
RG 111	Content of expert reports (March 2011)
RG 112	Independence of experts (March 2011)



Reference	Definition
RISC Advisory	RISC Advisory
RISC Advisory's Report	The technical assessment and valuation report prepared by RISC Advisory dated 10 July 2018
Risco	Risco Energy Investments (SEA) Limited
Rubicon	The Rubicon gas discovery covered by Retention Lease WA-34-R
Section 611	Section 611 of the Corporations Act
Shareholders	Shareholders of Tap Oil Limited not associated with Risco
SRB	A special remuneratory benefit paid to the Thai Government
Sum-of-Parts	A combination of different methodologies used together to determine an overall value where separate assets and liabilities are valued using different methodologies
Suncastle	Suncastle Equities Inc.
Supplementary Bidder's Statement	The replacement Bidder's Statement released by Risco on 16 May 2018
Supplementary Target's Statement	Supplementary Target's Statement from Tap Oil dated on or about the date of this Report
Tallaganda gas field	The Tallaganda Gas Field discovered in 2012, and covered by Retention Lease WA-72-R
Tap Oil	Tap Oil Limited
Target	Tap Oil Limited
Target's Statement	Tap Oil's Target Statement, released on 15 May 2018
Taunton	The Taunton Oil Field, situated along the boundaries of Exploration permit TP/7 and Production License TL/2 $$
TL/2	The TL/2 Production License
TL/7	The TP/7 Exploration Permit
Valmin Code	Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets (2015 Edition)
Valuation Engagement	An Engagement or Assignment to perform a Valuation and provide a Valuation Report where the Valuer is free to employ the Valuation Approaches, Valuation



Reference	Definition
	Methods, and Valuation Procedures that a reasonable and informed third party would perform taking into consideration all the specific facts and circumstances of the Engagement or Assignment available to the Valuer at that time.
VWAP	Volume Weighted Average Price
WACC	Weighted Average Cost of Capital
Woollybutt	The Woollybutt Oil Field contained within the WA-25-L Production License
Zola	The Zola discovery drilled in 2012, and covered by Retention Lease WA-49-R

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The Directors BDO Corporate Finance (WA) Pty Ltd 38 Station Street SUBIACO, WA 6008 Australia



# Appendix 2 - Valuation Methodologies

Methodologies commonly used for valuing assets and businesses are as follows:

## 1 Net asset value ('NAV')

Asset based methods estimate the market value of an entity's securities based on the realisable value of its identifiable net assets. Asset based methods include:

Orderly realisation of assets method

Liquidation of assets method

Net assets on a going concern method

The orderly realisation of assets method estimates fair market value by determining the amount that would be distributed to entity holders, after payment of all liabilities including realisation costs and taxation charges that arise, assuming the entity is wound up in an orderly manner.

The liquidation method is similar to the orderly realisation of assets method except the liquidation method assumes the assets are sold in a shorter time frame. Since wind up or liquidation of the entity may not be contemplated, these methods in their strictest form may not be appropriate. The net assets on a going concern method estimates the market values of the net assets of an entity but does not take into account any realisation costs.

Net assets on a going concern basis are usually appropriate where the majority of assets consist of cash, passive investments or projects with a limited life. All assets and liabilities of the entity are valued at market value under this alternative and this combined market value forms the basis for the entity's valuation.

Often the FME and DCF methodologies are used in valuing assets forming part of the overall Net assets on a going concern basis. This is particularly so for exploration and mining companies where investments are in finite life producing assets or prospective exploration areas.

These asset-based methods ignore the possibility that the entity's value could exceed the realisable value of its assets as they do not recognise the value of intangible assets such as management, intellectual property and goodwill. Asset based methods are appropriate when an entity is not making an adequate return on its assets, a significant proportion of the entity's assets are liquid or for asset holding companies.

## 2 Quoted Market Price Basis ('QMP')

A valuation approach that can be used in conjunction with (or as a replacement for) other valuation methods is the quoted market price of listed securities. Where there is a ready market for securities such as the ASX, through which shares are traded, recent prices at which shares are bought and sold can be taken as the market value per share. Such market value includes all factors and influences that impact upon the ASX. The use of ASX pricing is more relevant where a security displays regular high volume trading, creating a liquid and active market in that security.

# 3 Capitalisation of future maintainable earnings ('FME')

This method places a value on the business by estimating the likely FME, capitalised at an appropriate rate which reflects business outlook, business risk, investor expectations, future growth prospects and other entity specific factors. This approach relies on the availability and analysis of comparable market data.



The FME approach is the most commonly applied valuation technique and is particularly applicable to profitable businesses with relatively steady growth histories and forecasts, regular capital expenditure requirements and non-finite lives.

The FME used in the valuation can be based on net profit after tax or alternatives to this such as earnings before interest and tax ('EBIT') or earnings before interest, tax, depreciation and amortisation ('EBITDA'). The capitalisation rate or 'earnings multiple' is adjusted to reflect which base is being used for FME.

# 4 Discounted future cash flows ('DCF')

The DCF methodology is based on the generally accepted theory that the value of an asset or business depends on its future net cash flows, discounted to their present value at an appropriate discount rate (often called the weighted average cost of capital). This discount rate represents an opportunity cost of capital reflecting the expected rate of return which investors can obtain from investments having equivalent risks.

Considerable judgement is required to estimate the future cash flows which must be able to be reliably estimated for a sufficiently long period to make this valuation methodology appropriate.

A terminal value for the asset or business is calculated at the end of the future cash flow period and this is also discounted to its present value using the appropriate discount rate.

DCF valuations are particularly applicable to businesses with limited lives, experiencing growth, that are in a start-up phase, or experience irregular cash flows.

## 5 Market Based Assessment

The market based approach seeks to arrive at a value for a business by reference to comparable transactions involving the sale of similar businesses. This is based on the premise that companies with similar characteristics, such as operating in similar industries, command similar values. In performing this analysis, it is important to acknowledge the differences between the comparable companies being analysed and the company that is being valued and then to reflect these differences in the valuation.



# Appendix 3 - Discount Rate Assessment

Determining the correct discount rate, or cost of capital, for a business requires the identification and consideration of a number of factors that affect the returns and risks of a business, as well as the application of widely accepted methodologies for determining the returns of a business.

The discount rate applied to the forecast cash flows from a business represents the financial return that will be required before an investor would be prepared to acquire (or invest in) the business.

The capital asset pricing model ('CAPM') is commonly used in determining the market rates of return for equity type investments and project evaluations. In determining a business' weighted average cost of capital ('WACC') the CAPM results are combined with the cost of debt funding. WACC represents the return required on the business, whilst CAPM provides the required return on an equity investment.

Since making a final debt repayment of \$US3.4 million under the BNP Facility in September 2017, Tap Oil has been debt free. Consequently the cash flows we are discounting are the cash flows to equity holders. Therefore, the appropriate discount rate to discount the forecast cash flows to their present value is the cost of equity.

## Cost of Equity and Capital Asset Pricing Model

CAPM is based on the theory that a rational investor would price an investment so that the expected return is equal to the risk free rate of return plus an appropriate premium for risk. CAPM assumes that there is a positive relationship between risk and return, that is, investors are risk averse and demand a higher return for accepting a higher level of risk.

CAPM calculates the cost of equity and is calculated as follows:

САРМ	
K <sub>e</sub>	$= R_f + \beta x (R_m - R_f)$
Where:	
K <sub>e</sub>	= expected equity investment return or cost of equity in nominal terms
R <sub>f</sub>	= risk free rate of return
R <sub>m</sub>	= expected market return
R <sub>m</sub> - R <sub>f</sub>	= market risk premium
в	= equity beta

The individual components of CAPM are discussed below.

## Risk Free Rate (Rf)

The risk free rate is normally approximated by reference to a long term government bond with a maturity equivalent to the timeframe over which the returns from the assets are expected to be received. We have considered current and implied forward yields for the 10-year Australian Government Bond yield. Based on our analysis, we have adopted a long term estimate for the 10-year Australian Government Bond yield of 3.0%.



#### Market Risk Premium (Rm - Rf)

The market risk premium represents the additional return that investors expect from an investment in a well-diversified portfolio of assets. It is common to use a historical risk premium, as expectations are not observable in practice. In order to determine an appropriate market risk premium in Australia, we analysed historical data. Our sample of data included the daily historical market risk premiums in Australia, from 8 June 2009 to 8 June 2018. Our research indicated the market risk premium in Australia has ranged from a low of 5.59% to a high of 11.78%.

The market risk premium is derived on the basis of capital weighted average return of all members of the S&P 200 Index minus the risk free rate, which is dependent on the 10-year Australian Government Bond rate.



#### Source: Bloomberg

The graph above illustrates the frequency of observations of the Australian market risk premium over the past nine years, from 8 June 2009 to 8 June 2018. The graph indicates that a high proportion of the sample data for Australian market risk premiums lie in the range of 6% to 8%. This is supported by the long term historical average market risk premium of between 6% and 8%, which is commonly used in practice. For the purpose of our Report, we have adopted a market risk premium of 6% to 8%.

#### Equity Beta

Beta is a measure of the expected correlation of an investment's return over and above the risk free rate, relative to the return over and above the risk free rate of the market as a whole; a beta greater than one implies that an investment's return will outperform the market's average return in a bullish market and underperform the market's average return in a bearish market. On the other hand, a beta less than one implies that the company will underperform the market's average return in a bullish market and outperform the market's average return in a bullish market and outperform the market's average return in a bullish market and outperform the market's average return in a bullish market and outperform the market's average return in a bullish market.

Equity betas are normally estimated using either a historical beta or an adjusted beta. The historical beta is obtained from the linear regression of a stock's historical data and is based on the observed relationship between the security's return and the returns on an index. An adjusted beta is calculated based on the



assumption that the relative risk of the past will continue into the future, and is hence derived from historical data. It is then modified by the assumption that a stock will revert towards the market (i.e. a beta of one) over time, taking into consideration the industry risk factors, which make the operating risk of the company greater or less risky than comparable listed companies.

It is important to note that it is not possible to compare the equity betas of different companies without having regard to their gearing levels. Thus, a more valid analysis of betas can be achieved by 'ungearing' the equity beta ( $\beta_a$ ) by applying the following formula:

## $B_a = B / (1+(D/E \times (1-t)))$

In order to assess the appropriate equity beta for Manora, we have had regard to the equity betas of ASX listed companies with operations similar in nature to Tap Oil, with respect to commodity type, stage of production and location. We also included Jadestone Energy Inc., a company listed on the Toronto Stock Exchange Venture Exchange and KrisEnergy Ltd, a company listed on the Singapore Stock Exchange as both have operations similar to Tap Oil in South-East Asia. We have not included Tap Oil in our data set, as we do not consider there to be a liquid and active market for Tap Oil shares, based on our analysis in Section 10.2. As we are applying a discount rate specifically to Manora, we have assessed a number of comparable companies' betas, and adjusted for any specific risks we consider are associated with Manora.

The geared betas below have been calculated against the S&P All Ordinaries Index using weekly data over a four-year period, from 1 May 2014 to 1 May 2018. The data below sets out our wider data set, which does not account for our appropriate considerations and adjustments.

Company	Market capitalisation 01/05/2018	Geared Beta	Gross Debt/Equity	Ungeared Beta	
	(\$Am)	(B)		(Ba)	R²
Tap Oil Limited	25.56	1.00	0%	1.00	0.05

Source: Bloomberg and BDO analysis

Company	Market capitalisation 01/05/2018 (\$Am)	Geared Beta (B)	Gross Debt/Equity (%)	Ungeared Beta (Ba)	R²
Bass Oil Limited	10.42	0.57	384%	0.15	0.00
Cue Energy Resources Limited	49.57	0.59	0%	0.59	0.01
Horizon Oil Limited	208.32	1.17	117%	0.64	0.08
Lion Energy Limited	4.42	1.84	0%	1.84	0.07
Oil Search Limited	12,051.92	1.12	76%	0.73	0.24
Range Resources Limited	34.18	1.67	105%	0.96	0.05
Jadestone Energy Inc.	107.33	1.30	0%	1.30	0.04
KrisEnergy Ltd.	148.78	0.98	266%	0.34	0.03
Mean	1,576.87	1.15	11 <b>9</b> %	0.82	
Median	78.45	1.14	91%	0.68	

Source: Bloomberg, BDO analysis

Descriptions of the companies set out in the table above are summarised as follows.



Company Name	Company Description
Bass Oil Limited (ASX:BAS)	Bass Oil Limited engages in the exploration and production of oil and gas. It holds a 55% interest in the Tangai-Sukananti KSO production assets located within the South Sumatra basin in Indonesia. The company was formerly known as Bass Strait Oil Company Ltd and changed its name to Bass Oil Limited in March 2017. Bass Oil Limited is based in Melbourne, Australia.
Cue Energy Resources Limited (ASX:CUE)	Cue Energy Resources Limited explores for, develops, and produces petroleum. It explores for hydrocarbons through its projects located in Australia, New Zealand, and Indonesia. The company was founded in 1981 and is headquartered in Melbourne, Australia.
Horizon Oil Limited (ASX:HZN)	Horizon Oil Limited engages in the exploration, development, and production of oil and gas properties in Southeast Asia. It holds interest in the Block 22/12 oil field in Beibu Gulf, China; Maari/Manaia fields in New Zealand; and Stanley condensate/gas development and six onshore permits in Papua New Guinea. Horizon Oil Limited is based in Woolloomooloo, Australia.
Lion Energy Limited (ASX:LIO)	Lion Energy Limited, through its subsidiaries, explores for, develops, and produces oil and gas in Indonesia. The company holds a 2.5% participating interest in the Seram (Non Bula) block production sharing contract (PSC) that covers an area of 1,524 km2 located onshore on the island of Seram in eastern Indonesia. It also owns a 40.7% interest in the South Block A PSC that includes Area 1 comprising 366 km2 and Area 2 consisting 55 km2 located in the prolific North Sumatra Basin. Lion Energy Limited was incorporated in 1970 and is based in Subiaco, Australia.
Oil Search Limited (ASX:OSH)	Oil Search Limited explores for, develops, and produces oil and gas properties primarily in Papua New Guinea. The company operates through PNG Business Unit, Exploration, and Other segments. It is involved in the development, production, and sale of liquefied natural gas, crude oil, natural gas, condensate, naphtha, and other refined products; and power generation activities. As of December 31, 2017, the company's proved and probable reserves, and contingent resources comprised 125.8 million barrels of oil and condensate; and 6,341 billion cubic feet of gas. Oil Search Limited was founded in 1929 and is based in Port Moresby, Papua New Guinea.
Range Resources Limited (ASX:RRS)	Range Resources Limited engages in the exploration, development, and production of oil and gas in Trinidad and Indonesia. It holds 100% interests in three onshore production licenses, including Morne Diablo, South Quarry, and Beach Marcelle; and 80% interest in the St Mary's exploration block. The company was incorporated in 1982 and is based in Perth, Australia.
Jadestone Energy Inc. (TSXV:JSE)	Jadestone Energy Inc., together with its subsidiaries, engages in the production, development, and exploration and appraisal activities in Australia, Indonesia, Vietnam, and the Philippines. Its two producing assets include the Stag Oilfield located in the Carnarvon Basin, offshore Western Australia with a total proved and probable reserves of 17.1 million barrels of oil; and the Ogan Komering production sharing contract located onshore South Sumatra, Indonesia. The company's portfolio also comprises approximately 44,000 square kilometers of exploration and pre-development acreage across the Philippines, Vietnam, and Indonesia. Jadestone Energy Inc. is headquartered in Singapore.
KrisEnergy Ltd. (SGX:SK3)	KrisEnergy Ltd., an independent upstream company, focuses on the exploration, development, and production of oil and gas in Southeast Asia. The company holds working interests in four producing oil and/or gas fields, including three oil and/or gas fields in the Gulf of Thailand and one oil and/or gas field in onshore Bangladesh. It also participates in 13 blocks in various stages of development, appraisal, and exploration in Bangladesh, Cambodia, Indonesia, Thailand, and Vietnam. In addition, the company is involved in the charter and sub-charter of mobile offshore production unit; and provision of management support services. The company was formerly known as KrisEnergy



**Company Name** 

**Company Description** 

Holdings II Ltd. and changed its name to KrisEnergy Ltd. in July 2012. KrisEnergy Ltd. was founded in 2009 and is based in Singapore.

Source: Bloomberg and S&P Capital IQ

#### Selected Beta (B)

In selecting an appropriate beta for Tap Oil, we have considered the similarities and differences between the comparable companies set out above. The comparable similarities and differences noted are:

- the comparable companies all have producing oil and gas assets;
- we consider Lion Energy Limited ('Lion Energy') to have operations comparable to Manora, with Lion Energy's primary revenue generating operations located in South East Asia. However, we note that Lion Energy is smaller than Tap Oil, with a market capitalisation of \$4.42 million at 1 May 2018 compared to Tap Oil's market capitalisation of \$25.6 million;
- Range Resources Limited ('Range Resources') and Cue Energy Resources Limited ('Cue Energy') are similar in size to Tap Oil, with market capitalisations of \$34.18 million and \$49.57 million respectively, at 1 May 2018;
- Manora is located in the Gulf of Thailand, whereas Range Resources, Cue Energy and Jadestone Energy Inc. ('Jadestone') have revenue generating operations located elsewhere;
- Range Resources has revenue generating operations in Trinidad and Tobago. Although Trinidad and Tobago shares the same Organisation for Economic Co-operation and Development ('OECD') country risk classification as Thailand, the observed beta for Range Resources may incorporate additional factors that are not relevant to Tap Oil, including sovereign risk;
- While Cue Energy and Jadestone do have revenue generating operations in south east Asia, they also have revenue generating operations in New Zealand and in Australia respectively so the observed betas for Cue Energy and Jadestone may also incorporate additional factors not relevant to Tap Oil;
- Oil Search Limited ('Oil Search') is substantially larger than Tap Oil. Most of Oil Search's revenue is derived from the sale of liquefied natural gas so that the observed beta for Oil Search may also incorporate additional factors not relevant to Tap Oil;

In selecting our ungeared beta, we have considered the comparable companies' ungeared betas, and the factors listed above. A summary of our conclusions regarding data selection is set out below:

- as discussed in our comparison of the similarities and differences between Tap Oil and the companies above, we note Oil Search is substantially larger than Tap Oil. As we are assessing a beta, and therefore the discount rate for Manora, we do not consider it appropriate to include this company in our assessment of an appropriate discount rate.
- We removed Bass and Cue from the data set on the basis of the low level of correlation for the data for these entities as evidenced by the R<sup>2</sup> in the table above.



A summary of our final data set is summarised below.

Company	Geared Beta	Gross Debt/Equity	Ungeared Beta
	(В)		(Ва)
Horizon Oil Limited	1.17	117%	0.64
Lion Energy Limited	1.84	0%	1.84
Range Resources Limited	1.67	105%	0.96
Jadestone Energy Inc.	1.30	0%	1.30
KrisEnergy Ltd.	0.98	266%	0.34
Mean	1.39	98%	1.02
Median	1.30	105%	0.96

Source: Bloomberg, BDO analysis

As set out above, the average ungeared beta based on our data set is 1.02. Based on our analysis we consider an appropriate beta for Tap Oil to be in the range of 0.95 to 1.10.

## **Cost of Equity**

We have assessed the cost of equity, and therefore the cost of capital of Tap Oil to be in the range of 8.7% to 11.8% with our preferred value being rounded to a midpoint of 10.0%

Input	Value Adopted	
	Low	High
Risk free rate of return	3.00%	3.00%
Equity market risk premium	6.00%	8.00%
Beta (Ba)	0.95	1.10
Cost of Equity (rounded)	8.7%	11.8%

Source: Bloomberg, BDO analysis



# Appendix 4 - Independent Technical Assessment and Valuation Report



# Independent Technical Specialists Report on the Petroleum Properties of Tap Oil Limited



decisions with confidence



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# 1. Executive Summary

The Directors Tap Oil Limited Level 2, 190 St Georges Terrace Perth, WA 6000, Australia Mr Sherif Andrawes, Director BDO Corporate Finance (WA) Pty Ltd 38 Station Street Subiaco, WA 6008, Australia

10 July 2018

Dear Directors and Independent Expert,

#### Independent Technical Specialist's Report on the Petroleum Assets of Tap Oil Limited

BDO Corporate Finance (WA) Pty Ltd ("BDO") has been appointed by the Directors of Tap Oil Limited ("Tap") as the Independent Expert in relation to the proposed takeover offer for Tap made by Risco Energy Investments (SEA) Limited (the "Proposed Transaction").

To assist BDO in preparing its Independent Expert Report in relation to the Proposed Transaction, BDO has provided instructions to RISC Advisory Pty Ltd ("RISC") to prepare this document, an Independent Technical Specialist's Report in relation to the petroleum assets of Tap.

This Independent Technical Specialist's Report documents our review of the petroleum reserves, resources and associated development schedules, production and cost forecasts. We have reviewed estimates provided by Tap and made such adjustments that in our judgement were necessary to provide a reasonable assessment and reflect current information. We have prepared scenarios for valuation of the Manora field interest by BDO. This report also provides a description and economic analysis of the remaining Tap interests outside of Manora.

#### **Reserves and Contingent Resources**

The estimated 2P reserves and 2C contingent resource volumes net to Tap as at 1 June 2018 are shown in Table 1-1 and Table 1-2 respectively. Reserves and resources have been evaluated in accordance with PRMS Guidelines.

Table 1-1: 2P reserve	es net to Tap	as at 1 June 2018
-----------------------	---------------	-------------------

Country (Duplicat	Oil	
Country/Project	MMstb	
Thailand – Manora Field	1.9	
Total 2P	1.9	



#### Table 1-2: 2C contingent resources net to Tap as at 1 June 2018

Country (Duoiset	Gas	Condensate	Oil	Total
country/project	PJ	MMstb	MMstb	MMboe
Thailand – Manora Field	0.0	0.0	0.6	0.6
Australia	128.8	0.4	0.0	21.9
Total 2C	128.8	0.4	0.6	22.5

Notes to tables:

- 1. A combination of probabilistic and deterministic methods has been used;
- 2. Reserves and contingent resources have been aggregated arithmetically;
- 3. The reference point for reserves estimation is the custody transfer point for the products. Reserves are stated as sales quantities net of fuel and flare;
- 4. All the above reserves and contingent resources are considered conventional;
- 5. PJ means one petajoule (10<sup>15</sup> joules);
- 6. MMstb is one million barrels. One barrel is 158.99 litres;
- MMboe is one million barrels of oil equivalent. Conversion factors used to evaluate oil equivalent quantities are condensate 1.0 boe/bbl and sales gas 6.0 PJ/MMboe;
- 8. The contingent resources have not been risked to reflect the chance of development

The Manora field commenced production in 2014. Production performance to date has been characterised by increasing water cut and a number of ESP failures. However, infill drilling and workovers during 2016 and 2017 have been successful in increasing oil production rates and projected recovery. In particular, the MNA-18 and 19 wells drilled in late 2017 have increased oil production significantly and, in the case of the former well, led to indications of additional resources which have recently been appraised by Manora -8ST and are planned to be developed by the recently drilled MNA-20 and -21 wells during 2018.

Planned future development during 2018 comprises completion of the MNA-20 and -21 development wells and installation of facilities to increase water handling capacity. RISC's 2P forecasts assume 2 further development wells in 2019 consistent with the Joint Venture's (JV's) plans but it is likely there will be changes in forward plans following analysis of the recent drilling.

RISC has developed Manora production and cost forecasts for the following two development scenarios:

- 1. Development of 2P reserves; and
- 2. Development of 2P reserves + selected 2C contingent resources.

The 2P case reflects the volumes that in our view can be classified as 2P reserves and, as such, includes future development plans that the JV has a firm intention of executing. The 2P+2C case includes additional development activities that RISC would expect to add value but for which the necessary studies and plans are not yet considered mature enough to be considered as reserves. The difference in production, costs and values between these cases can be attributed to the additional 2C development activities, while noting that a component of the incremental value is derived from the longer economic life which leads to an extension of the 2P production forecast and deferment of abandonment costs.



Tap's share of projected total capital and operating expenditure for the Manora field 2P and 2P+2C resource cases is summarised below.

Project	Cost Type	2Р	2P+2C
	Capital	6.3	11.5
	Operating	77.8	105.5
<b>Thailand</b> – Manora Field	Exploration	1.4	1.6
	Abandonment	15.4	16.1
	Total	100.9	134.6

Table 1-3: Tap Share of Total Field Capital and Operating Expenditure Forecast (US\$ million)

Details of the production and cost profiles associated with the development and production of these resources are included in our report. The valuation of the Manora Field reserves and contingent resources is addressed in BDO's report.

#### Value of Tap non-producing assets

RISC has used a number of methods to assist BDO with their valuation of Tap's non-producing assets (excluding Manora 2C resources which are addressed by BDO's report). Our valuation estimates are net of work commitments in the assets.

A range of values is typically estimated for individual assets. While acquirers of the individual permits could value individual assets at either end of the value range, it is unlikely that potential buyers of the exploration asset portfolio would value all of the assets at either the arithmetically summed low or arithmetically summed high totals.

Their own assessments of individual permits will span the low, best or high outcomes based on factors including: their strategic objectives and region or geological basin focus; assessment of an asset's prospectivity and associated geological risks; the fiscal and regulatory framework applicable to the asset; accessibility of commercialisation routes, including markets and infrastructure, for each asset; equity interests, operator capability and joint venture partners in each asset.

RISC accounts for the portfolio effects by estimating the low and high values of the exploration assets and using a probabilistic method of simulating likely outcomes in asset value to find a range of value across the portfolio. There may be further adjustments required to the range based on judgement taking into account the specifics of the portfolio and market.

Adjusting for portfolio effects, RISC's analysis indicates a value range for Tap's non-producing assets of between approximately US\$2 million liability and US\$12 million. These estimates do not take account of Tap's tax position.



# 2. Introduction

# 2.1. Tap's oil and gas properties

Tap has interests in a portfolio including a producing oil field in the Gulf of Thailand and oil and gas properties in the Carnarvon and Bonaparte Basins offshore Australia.



# 2.1.1. Thailand

The G1/48 concession lies at the northern end of the Gulf of Thailand within the Kra Basin. The block contains the producing Manora Production Area and retained acreage under a Reservation Area Agreement, Figure 2-1.



Figure 2-1: G1/48 Concession Location

Current concessionaires in the Joint Venture (JV) are:

- MP G1 (Thailand) Limited (Operator) 60%
- Tap Energy (Thailand) Pty Ltd 30%
- Northern Gulf Petroleum Pte Ltd 10%



Outside of the Manora Production Area, the G1/48 Joint Venture currently retains 87.82 km<sup>2</sup> under a five year Reservation Area Agreement. The area retained focuses exclusively on the Malida discovery and some prospective acreage to the east of Block B5/27. Tap have not provided technical information on the Reservation Area and the area is not considered to add value to the portfolio due to the small size of the Malida discovery. The reservation area has not been evaluated or valued in this report.

# 2.1.2. Australia

Tap retains interests in a number of Australian Carnarvon and Bonaparte Basin permits. The permits of continued interest for Tap are WA-33-R, WA-34-R, WA-72-R and WA-25-L. Although remaining exploration potential is considered limited, the permits do have existing discoveries and associated Contingent Resources on them which are considered to have value.

# 2.2. Terms of reference and basis of assessment

# 2.2.1. Terms of reference

This assignment has been conducted under the terms of our engagement with Tap dated 11 May 2018 and under the direction of Independent Expert, BDO. RISC's terms of reference are:

- RISC will provide the technical input for valuation of the Manora Field;
- RISC will provide a technical description and valuation of any Contingent Resources;
- RISC will provide a technical description and valuation of the exploration acreage and any ascribed Prospective Resources;
- RISC will prepare the Independent Technical Specialist's Report for inclusion in the Independent Expert's Report. The Technical Specialist's Report is to be addressed to BDO.

During the course of the assignment, it was agreed with BDO that RISC would also provide technical inputs for the valuation of Manora Field contingent resources (as well as reserves) and hence the valuation of these resources is not addressed in this report.

## 2.2.2. Basis of assessment

The data and information used in the preparation of this report were provided by Tap and supplemented by public domain information. RISC has relied upon the information provided and has undertaken the evaluation on the basis of a review and audit of existing interpretations and assessments as supplied making adjustments that in our judgment were necessary. Our assessment for the producing assets is based on production data up to 31 May 2018.

RISC has reviewed the reserves/resources in accordance with the Society of Petroleum Engineers internationally recognised Petroleum Resources Management System (PRMS)<sup>1</sup> and the Australian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets (VALMIN Code 2015).

We have reviewed the production forecasts, development plans and costs prepared by Tap. The reserves presented in this report are based on long term mid-case oil price projections provided by BDO.

<sup>&</sup>lt;sup>1</sup> SPE/WPC/AAPG/SPEE 2007 Petroleum Resources Management System



Unless otherwise stated, all resources presented in this report are gross (100%) quantities with an effective date of 1 June 2018. Unless otherwise stated, all costs are in real terms with a reference date of 1 January 2018 (RT2018).

# 2.2.3. Exploration evaluation

A range of oil and gas industry accepted practices can be used to estimate the value of exploration assets and these are discussed below. To assist BDO with their valuation, RISC has collated the relevant data and information for the alternative valuation methods.

The VALMIN Code defines Value as the amount of money (or the cash equivalent of some other consideration) determined by the Expert in accordance with the provisions of the VALMIN Code for which the Mineral or Petroleum Asset or Security should change hands on the Valuation Date in an open and unrestricted market between a willing buyer and a willing seller in an "arm's length" transaction, with each party acting knowledgeably, prudently and without compulsion.

# 2.2.3.1. Comparable transaction metrics

The Value of exploration properties can be estimated using recent comparable transactions. Such transactions may provide relevant metrics such as Value per unit of reserves, contingent or prospective resources, and price paid per unit area of the permit or % interest. The VALMIN Code advises Value must also take into account risk and premium or discount relating to market, strategic or other considerations.

# 2.2.3.2. Farm-in promotion factors

An estimate of value can be based on an estimation of the share of future costs likely to be borne by a notional farmee under prevailing market conditions. A premium or promotion factor may be paid by the farmee. The promotion factor is defined as the ratio of the proportion of the activity being paid for and the amount of equity being earned.

The nominal permit value is defined as the amount spent by the farmee divided by the interest earned. The premium value for the permit is the difference between the nominal value and the equity share of the cost of the activity divided by the equity interest being earned.

The premium or promotion factor will be dependent upon the perceived prospectivity of the property, competition and general market conditions. The premium value is equivalent to the farmee paying the farmor a cash amount in return for the acquisition of the interest in the permit and is the fair market value.

Farm-in transactions may have several stages. For example, a farmee may acquire an initial interest by committing to a future cost in the first stage of the transaction, but has an option to acquire an additional interest or interests in return to committing to funding a further work programme or programmes.

Farm-in agreements can also include re-imbursement of past costs and bonus payments once certain milestones are achieved, for example declaration of commerciality, or achieving threshold reserves volumes. Depending on their conditionality, such future payments may contribute to value. However, they may need to be adjusted for the time value of money and probability of occurring.

## 2.2.3.3. Work programme

The costs of a future work programme may also be used to estimate value. The work programme valuation relies on the assumption that unless there is evidence to the contrary the permit is worth what a company



will spend on it. This method is relevant for permits in the early stages of exploration and for expenditure which is firmly committed as part of a venture budget or as agreed with the government as a condition of holding the permit. There may need to be an adjustment for risk and the time value of money.

# 2.2.3.4. Expected monetary value (EMV)

EMV is calculated as the success case NPV times the probability of success less the NPV of failure multiplied by the probability of failure. The EMV method provides a more representative estimate of value in areas with a statistically significant number of mature prospects within proven commercial hydrocarbon provinces where the chance of success and volumes can be assessed with a reasonable degree of predictability. EMVs may require discounting to estimate market value depending upon project maturity and uncertainty.

The EMV valuation can also be used as a relative measure for ranking exploration prospects within a portfolio to make drilling decisions, assessing commercial potential and to demonstrate the commercial attractiveness of a permit, which may influence a buyer or seller.

## 2.2.3.5. Market factors

Since the latter part of 2014, oil prices have substantially declined from around the US\$100/bbl to under US\$30/bbl in January 2016. They have since recovered somewhat and are trading near US\$75/bbl at the time of writing this report (Figure 2-2). Tap's share price has not recovered in line with the recovery in oil price seen since the beginning of 2016.



Figure 2-2: Brent oil price and Tap share price 2014-2018



Prior to the mid-2014 oil price decline, interest in exploration valuations was high and farm-in promotes of 2 or greater were being seen for quality acreage with large investment programmes. Since then, there has been a paucity of transactions and anecdotally, RISC has identified that buyers are seeking farm-in promotes at or just above ground floor level.

In response to the market factors, our experience has been that oil and gas companies have slashed their exploration budgets and the value of exploration companies has declined significantly, although there are some signs that with the stabilisation and partial recovery in prices, exploration activity is beginning to improve.



# 3. Geological setting

# 3.1. Kra Basin, Thailand

The Kra Basin is essentially a late Tertiary trans-tensional basin, like many Asian Tertiary basins, and a generalized stratigraphy is shown in Figure 3-1. The basin opened in the Oligocene, when lacustrine source rocks and reservoirs were deposited. An unconformity at the end Oligocene was followed in the Miocene by the deposition of continental and lacustrine deposits including channel sands, overbank sands and some fans.



Figure 3-1: Thai Basin Stratigraphic Sequence.

The exploration plays in the northern Kra Basin are summarised in Figure 3-2. The key play for Block G1/48 is Play 1 -Oligocene to Miocene Syn-rift Lacustrine fan/delta & carbonates -VIMT 10 to 58, where the 300, 400, 500 and 600 series form the key reservoirs for the Manora field.





Figure 3-2: Kra Basin Play Summaries

The Manora Field is located on the western side of the Kra basin in a downfaulted panel sealed against basement to the west.

# 3.2. Carnarvon Basin

The Palaeozoic-Recent Northern Carnarvon Basin is a large, mainly offshore, basin on the northwest shelf of Australia. The major basin faults trend north or northeast and define a series of structural highs and subbasins. The basin developed during four successive periods of extension and thermal subsidence. The first phase, Silurian to Permian, developed as a series of intracratonic basins during the breakup of Gondwana along the western margin of Australia. Subsequent Early Jurassic extension initiated the four main depocentres - the Exmouth, Barrow, Dampier and Beagle Sub-basins, Figure 3-3. A third extension phase in the Middle Jurassic resulted in the seafloor spreading in the Argo Abyssal Plain to the north and the fourth Tithonian-Valanginian rifting phase culminated in the creation of the Gascoyne-Cuvier abyssal plains to the west and south. The extensive deep-water (800 - 3,000 m) Exmouth Plateau forms a bathymetric plateau outboard of the main depocentres and developed in response to thermal sag after Valanginian breakup.

The main depocentres contain up to 15 km of sedimentary infill. Triassic to Early Cretaceous deposition is dominantly siliciclastic deltaic to marine, whereas slope and shelfal marls and carbonates dominate the Mid-Cretaceous to Cainozoic section. The carbonate-rich sediments were deposited as a series of northwestward prograding wedges as the region continued to cool and subside. This resulted in deep burial of the underlying Mesozoic source and reservoir sequences in the inboard part of the basin.





Figure 3-3: Sub basin layout of the North West Shelf area

Almost all the hydrocarbon resources in the basin are reservoired within the Upper Triassic, Jurassic and Lower Cretaceous sandstones beneath the regional Early Cretaceous seal.

The Lower Triassic section in the Carnarvon Basin is marked by a regional marine transgression that represents the sag phase of a previous Paleozoic rift cycle. The marine Locker Shale unconformably overlies the Permian section and grades upwards into the Middle-Upper Triassic Mungaroo Formation (Figure 3-4). The Mungaroo Formation was deposited in a broad, low relief, rapidly subsiding fluvio-deltaic coastal plain that extended across the Exmouth Plateau. During marine transgression in the latest Triassic (Rhaetian), carbonate patch reefs developed on the Wombat Plateau and probably extended across the northern- and western-central parts of the Exmouth Plateau, while marls, siltstones and thin sandstones (Brigadier Formation) were deposited elsewhere.

As rifting proceeded between Australia and Greater India, several faulting episodes occurred in the Jurassic. In the Pliensbachian, rifting inboard of the Exmouth Plateau formed the Exmouth, Barrow and Dampier sub-basins. Several kilometres of marine Jurassic sediments, equivalent to condensed sections on the central Exmouth Plateau (Dingo Claystone equivalents), were deposited in these troughs. Major rift-fault movement occurred in the Callovian with oceanic crust created in the Argo Abyssal Plain in the late Oxfordian, and in the Gascoyne and Cuvier abyssal plains in the Valanginian.



During the Late Jurassic in the eastern Exmouth Sub-basin, sandy shelfal facies were deposited within restricted shallow depocentres (including the Oxfordian Jansz Sandstone reservoir at the supergiant lo-Jansz gas accumulation). In the Early Cretaceous the Barrow Group delta prograded northward across the southern portion of the plateau to form a major sediment lobe with the shelf edge arced through or near the Investigator-1 and Zeepard-1 well locations. A distal claystone equivalent (Forestier Claystone) was deposited to the north of the delta lobe. Barrow Group basin floor fans form the reservoir at the Scarborough gas field.

As the newly formed oceanic crust of the Argo, Gascoyne and Cuvier abyssal plains rapidly subsided, the area was progressively transgressed throughout the Cretaceous by shallow marine mudstone (Muderong Shale) and siltstone (Gearle Siltstone), mid-outer shelf marl and chalk (Toolonga Calcilutite), and finally Cenozoic bathyal chalk and ooze.

The Triassic sedimentary succession has proven potential for mature source facies, including possible organic-rich units in the lower Triassic (marine locker shale equivalents) and upper Triassic (deltaic Mungaroo Formation facies and marine equivalents). The upper Jurassic Dingo Claystone is the principal source for oil in the Exmouth sub-basin. Migration of gas through the area has been proven by the presence of several accumulations to the north, including Spar and Gorgon. Hydrocarbon generation from the gas-prone Mungaroo Formation system and older Triassic source rocks presumably occurred in the Exmouth sub-basin during the Jurassic with the deposition of kilometres of Dingo Claystone and other sediments in the main depocentre.





Figure 3-4: Regional Stratigraphy of the Northern Carnarvon Basin



# 3.3. Bonaparte Basin

The Southern Bonaparte Basin evolved as part of a northwest trending Paleozoic rift system. The main rift phase occurred in the Devonian to early Cretaceous with a thick sedimentary sequence deposited, up to 20 km thick in the central part of the basin. The sedimentary section comprises mainly Paleozoic deposits, covered by Triassic and relatively thin Jurassic sediments, Figure 3-5.



Figure 3-5: Regional Stratigraphy of the Bonaparte Basin

The Late Permian of the Southern Bonaparte Basin is represented by the Hyland Bay Sub-group, which comprises the Torrens, Pearce, Cape Hay, Dombey and Tern Formations.



# 4. Producing Properties

# 4.1. Manora Field

## 4.1.1. Introduction

The Manora field is located in the southern part of the G1/48 concession in the northernmost part of the Gulf of Thailand, Figure 4-1. The field lies in shallow water depth (44 m) around 220 km south of Bangkok. The field has been on production since late 2014. The closest producing field is Jasmine, located some 85 km to the south east.



Figure 4-1: Location Map –G1 Manora field



The main area of interest within Block G1/48 is in the south and this area is largely covered by good quality 3D seismic data, acquired as several 3D seismic surveys; North Kra 2007, Kinnaree 2010/11 and South Kra 2010 (Figure 4-2). The North Kra 3D was reprocessed to PSDM in 2012. There is only sparse 2D seismic data in the north-western area of the block.



Figure 4-2: Block G1 / 48 Seismic Coverage

The Manora structure comprises two separate fault blocks (CFB and EFB) at significantly different structural levels, as shown in Figure 4-3.




Figure 4-3: Manora trap configuration

The EFB appears full to spill, with the hydrocarbons migrating northwards and then up into the CFB. The CFB however is not full to spill, suggesting either a charge limitation or limit to seal capacity. Given that the height of the column is some 300 m and is the largest seen in Thailand, RISC views the latter more likely.

The 600 series of sands comprise six individual parasequences as identified by flooding surfaces capping the reservoir sands. They exhibit both a coarsening-upwards profile characteristic of lacustrine fan delta sandstones as well as the more typical fining-upwards profile seen in the fluvial facies. These reservoirs are relatively shallow, from 4,200-5,800 ft. TVDSS and consequently have high porosities and permeabilities, due to the shallow burial depths. Based on pressure measurements and OWCs, these parasequences combine to form 3 flow units. Correlation of the 600 series sands between wells and across the fault blocks is good, with lateral continuity of lithofacies.

The reservoir fluid is under-saturated oil with a low GOR and medium API. Reservoir oil viscosity in the 600 reservoirs is typically about 2 cp. In the shallower 400 and 500 reservoirs estimated reservoir oil viscosity is about 6-8cp. No valid fluid samples have been obtained for the 300 reservoirs. It is likely that this fluid will be more viscous than observed in the 490-60 reservoir and applied recovery factors have been adjusted down accordingly.



Tap prepared a reserve review on Manora at year end 2017. The estimated gross oil in place volumes are presented in Table 4-1. These estimates pre-date the recent 2018 drilling.

Sector	STOIIP P50 (MMstb)
Central Fault Block	43.6
East Fault Block	20.9
Total	64.5

#### Table 4-1: STOIIP estimates by Fault Block (Tap YE17)

RISC has not reviewed all of these estimates since performance methods have been used to assess reserves in all reservoirs other than for the East Fault Block 300, 490-60 and 500 reservoirs. Our review of the latter reservoirs volumetrics is described below.

# 4.1.2. Wells Manora-8ST, MNA-20 and -21 Results

The Manora-8, Manora-8ST, MNA-20, and MNA-21 wells were drilled in May and June 2018 during the preparation of this report. The Manora-8 exploration well penetrated 4 ft of oil pay in a deeper objective than the main reservoir target and is not considered to have value.

Manora-8ST appraised the 490-60 sands on the hanging wall of the field and was prognosed to test the 300, 400 and 520-70 sands as shown in Figure 4-4. The well successfully encountered oil bearing zones at some of these levels and some additional zones as discussed below.



Figure 4-4: Seismic line over the Manora-8ST prospect



# 4.1.2.1. 490-60 Sands

The Manora-8ST well successfully appraised the crest of the 490-60 reservoir previously identified and developed in wells MNA-7 and MNA-18.

The operator simulation model for the 490-60 reservoir (based on mapping prior to the drilling of Manora-8ST, MNA-20 and -21) calculated a STOIIP for the 490-60 reservoir of 6.1 MMstb (P90) to 8.6 MMstb (P10) with a P50 estimate of 7.3 MMstb. Tap have calculated the STOIIP of the 490-60 reservoir probabilistically at 5.8 MMstb (P90) to 8.4 MMstb (P10) with a P50 estimate of 7.0 MMstb, based on mapping prior to the drilling of Manora-8ST, MNA-20 and -21.

The 490-60 reservoir in the Manora-8ST well came in on prognosis with 92 ft (TVD) of net reservoir sand interpreted between 4,696 ft and 4,802 ft (TVDSS). Net pay in Manora-8ST is estimated at 86 ft with an average porosity of 23% and average water saturation of 31%.

The MNA-20 well drilled in to the 490-60 level approximately 100 m NW of Manora-8ST and intersected 87 ft (TVD) of net reservoir sand between 4,656 ft and 4,785 ft (TVDSS). Net pay in MNA-20 is estimated at 79 ft with an average porosity of 23% and average water saturation of 30%.

The MNA-21 well was also drilled in to the 490-60 level and intersected 51 ft (TVD) of net reservoir sand between 4,829 ft and 4,898 ft (TVDSS). Net pay in MNA-21 is estimated at 44 ft with an average porosity of 20% and average water saturation of 50%.

RISC reviewed the well interpretations and the Tap reservoir property inputs to volumetrics and considers them reasonable.

Tap has prepared a time structure map which RISC converted to depth using a pseudo average velocity function based on the recent well penetrations. This map combined with the Tap reservoir property inputs results in a STOIIP volume in reasonable agreement with the Tap estimates above.

# 4.1.2.2. 500 Sands

The Manora-8ST well intersected oil bearing sands in the 500-50, 510-50 and 520-70 reservoirs.

#### 500-50 Reservoir

There is no time or depth structure map currently available for the 500-50 reservoir. For their volumetric assessment, Tap used their map at the 490-60 level (which RISC considers reasonable) and depth shifted it down to the 500-50 reservoir level.

The largest uncertainties are in the interpretation of the OWC and the depth of top reservoir. RISC reviewed the Tap reservoir property inputs and considers them reasonable.

#### 520-70 Reservoir

A 520-70 depth structure map was provided to Tap by the operator, which they shifted by 45 feet as the Manora-8ST well intersected the reservoir 90 feet deeper than the map depth.

Tap has prepared a time structure map of the regional VIMT 58 event, which is close to the 520-70, which RISC converted to depth using pseudo average velocity function based on well penetrations. Tap also provided an isopach of the VMT58 to 520 interval, which RISC subtracted to produce a 520-70 depth map. This confirmed that the Tap generated depth map was reasonable. However, significant uncertainty exists in the depth conversion and the resultant area.



### 510-50 Reservoir

There is no time or depth structure map currently available for the 510-50 reservoir. For their volumetric assessment, Tap used a map at the 520-70 level (which RISC considers reasonable) and depth shifted it up to the 510-50 reservoir level.

The largest uncertainties are in the interpretation of the OWC and the Top Reservoir. RISC reviewed the Tap reservoir property inputs and considers them reasonable.

# 4.1.2.3. 300 sands

The Manora-8ST well intersected oil bearing sands in the 300-1, 300-3/4, 300-5 and 300-6 reservoirs. Additional information on the 300 sands was recently obtained by the drilling of the MNA-20 and -21 wells.

Following the drilling of the MNA-20 well, Tap undertook a seismic interpretation of the 300-5 sand, Figure 4-5. The depth map for the 300-5 sand was derived using a constant velocity from Mean Sea Level (MSL) through to the 300-5 seismic pick of 2130 m/s which was derived using VSP data from the MNA-7 well.



Figure 4-5 Depth structure map of the 300-5 level sand (in feet)



Following the drilling of MNA-21, Tap prepared an updated time structure map of the 300-5, which RISC converted to depth using pseudo average velocity function based on the recent well penetrations. This confirmed that the original Tap generated depth map was reasonable. The 300-5 sand level map was then shifted to the top of the respective sand for each reservoir resource calculation.

# 4.1.2.4. Post-drill Volumetrics

Tap's probabilistic volumetric estimates for the East Fault Block 300, 490 and 500 reservoirs encountered by Manora -8ST, MNA -20 and -21 are shown below.

		STOIIP (MMstb)				
		Tap Estimate				
Level	Reservoir	P90	P50	P10		
490	490-60	5.77	6.98	8.41		
500	500-50	0.83	2.14	4.46		
	510-50	0.18	0.30	0.49		
	520-70	0.04	0.33	0.94		
	300-1	0.13	0.22	0.34		
300	300-3/4	0.58	0.99	1.47		
	300-5	3.62	4.54	5.59		
	300-6	0.70	1.62	2.98		

Table 4-2: Tap probabilistic volumetric estimates for East Fault Block 300, 490 and 500 reservoirs

As discussed above, RISC has reviewed the inputs to these calculations and considers them to be reasonable.

# 4.1.3. **Production Performance**

The Manora field commenced production in November 2014. To date, a total of 12 oil producers and 4 water injectors have been drilled and completed. Two additional production wells have been drilled recently and are planned to be completed in 2018.

As of the 31 May 2018 the Manora field's gross cumulative oil production was 13.1 MMstb oil. The average oil production rate in May 2018 was about 6.5 Mstb/d with a water cut of about 80%. Minor volumes of associated gas are utilized for platform fuel with the balance flared. Historical oil and water production history is shown below in Figure 4-6.



# Manora Field Production



Figure 4-6: Manora Field Historical Gross Oil and Water Production

The field production performance to date has been characterised by increasing water cut and a number of ESP failures. Infill drilling and workovers during 2016 and 2017 has been successful in increasing oil production rates and projected recovery. In particular, the MNA-18 and 19 wells drilled late 2017 have increased oil production significantly and, in the case of the former well, led to indications of further potential in the 490-60 and 500 reservoirs. This potential has recently been appraised by Manora-8ST and is being developed by wells MNA-20 and -21 during 2018 with further development drilling likely to follow.

The majority of production to date has been from the 610, 620 and 650 reservoirs. These reservoirs are compartmentalised and water injection has been implemented to improve oil recovery. Production performance of the East Fault Block 490-60 reservoir has indicated strong water drive and a similar drive mechanism is expected for the 500 reservoirs.

Production availability to date has been mainly driven by ESP failures and has averaged about 90%.

In late 2017, increasing levels of  $H_2S$  were detected in the production system. Wellhead measurements indicate that this is mainly coming from wells MNA-17 and MNA-01 and it is currently attributed to reservoir souring as a result of water injection. A number of studies and remedial actions are in progress and currently this issue is not materially impacting production rates. Additional costs required to manage the  $H_2S$  production are included in the projection described below.

# 4.1.4. Existing Facilities

The Manora facilities include a single Wellhead and Processing Platform (WPP) with 30 well slots that can accommodate a jack-up or tender assisted rig. The platform production wells utilise artificial lift with Electrical Submersible Pumps (ESPs). Water injection using a combination of treated seawater and produced water provides reservoir pressure support. Oil is exported from the WPP to a leased disconnectable Floating Storage and Offtake (FSO) vessel which also provides normal field accommodation. The FSO is moored to a single point mooring and crude is exported from the FSO to offloading tankers in a



tandem mooring configuration. The facilities design life is 20 years, thus the facilities will be approaching 'middle age' near anticipated end of field life (EoFL).

The facilities peak daily capacities based on design and actual production performance are:

- Oil 17,000 bbl/d (design 15,000 bbl/d);
- Total liquids 35,000 bbl/d (design 30,000 bbl/d);
- Produced water 25,000 bbl/d (design 30,000 bbl/d);
- Water injection 26,000 bbl/d (design 30,000 bbl/d).

Water production has been increasing and oil production is currently constrained by produced water handling capacity, specifically the hydrocyclones. Produced water treatment for oil in water (OIW) is required to be below 200 ppm to avoid reservoir injectivity issues. Operator has initiated a project to increase produced water capacity by installing an additional hydrocyclone unit with start-up expected in Q2 2019. This will increase produced water capacity to 30,000 bbl/d at which rate water injection and the floatation unit will constrain capacity.

# 4.1.5. **Future Development**

Planned future development during 2018 comprises of:

- Development wells MNA-20 and -21 targeting updip locations in the East Fault Block 490-60 reservoir with Operator predicted incremental UR of 0.60 and 0.25 MMstb respectively (completed);
- Installation of a second hydrocyclone to increase water handling capacity from the current constraint of about 25 Mbbl/d. This is currently expected to be commissioned in Q2 2019.

Note that these plans were made prior to the results of the Manora-8ST well. RISC understands that the MNA-20 well may be completed on the 500 reservoirs recently appraised by Manora-8ST and an additional well drilled in 2019 to develop the southern part of the 490-60 reservoir, however the Operator has not confirmed this plan.

Further development activity in 2019, described as "firm" by the Operator are the AT and BE wells targeting the 650 reservoir in the Central fault block and the 620/650 reservoirs in the Arrow Head fault block as well as 300 reservoirs in the East Fault Block. RISC understands that it is likely the AT location will be dropped. A further 4 "potential" development well locations have also been identified by the Operator.

The recently discovered East Fault Block 300 reservoirs present a further development opportunity. No development plans exist and therefore RISC has assumed that these reservoirs would be developed by 3 additional horizontal producers starting in 2020. RISC has assumed this would also require increased water production and injection capability with an additional water injection well and changing the sparing philosophy for the water injection pumps and power generators to no standby consistent with the operator's debottlenecking studies and managing water production by restricting some high water cut wells.

# 4.1.6. Manora Production Forecasts

RISC has reviewed production forecasts prepared by the Operator (2018 only) and Tap. There is no up to date full field simulation model and neither of these forecasts includes the latest timing for workovers, further development activities or the results of the Manora-8ST well. RISC has reviewed a reservoir simulation study by the Operator for the 490-60 reservoir although we did not have access to the model. This model has been history matched to the water cut performance at wells MNA-07 and -18 and used to



predict ultimate recovery (to April 2020) from this reservoir of 1.3 MMstb for the existing wells only and 2.7 MMstb with the addition of 2 updip wells planned to be drilled in 2018 (the recently completed MNA-20 and -21 wells).

RISC has therefore prepared its own 2P and 2P+2C production forecasts. The 2P case reflects the volumes that in our view can be classified as 2P reserves and, as such, includes future development plans that the JV has a firm intention of executing. The 2P+2C case includes additional development activities that RISC would expect to add value but for which the necessary studies and plans are not yet considered mature enough to be considered as reserves. The difference in production, costs and values between these cases can be attributed to the additional 2C development activities, while noting that a component of the incremental value is derived from the longer economic life which leads to an extension of the 2P production forecast and deferment of some abandonment costs.

In preparing the 2P case, RISC conducted decline curve analysis on individual wells and summed these to generate a No Further Activity forecast. We then added the planned incremental development activities described above based on the Operator's simulation for the 490-60 reservoir and we used analogy with previous studies and infill activities to forecast production for the 500 reservoirs and the BE well to be drilled in 2019.

RISC's 2P forecasts assume:

- 90% production efficiency reflecting downtime associated with the overall production system including well and ESP failures;
- MNA-08 resumes production in August 2018, following workover to repair the ESP;
- MNA-20 is completed on the 500 reservoirs and MNA -21 on the 490-60 reservoir
- Water production capacity of 25 Mbbl/d until 1 May 2019 and thereafter 30 Mbbl/d following hydrocyclone installation;
- An ongoing programme of producer and injector recompletions to optimise production and recovery within the facility constraints;
- Measures to manage increasing H<sub>2</sub>S production are successful and there is no material impact of oil production rates;

RISC's 2P+2C forecasts additionally assume:

- Development of the East Fault Block 300 reservoirs by 3 horizontal producers starting in 2020;
- Debottlenecking activities and drilling of an additional water injector deliver an increase in water production capacity to about 35 Mbbl/d from 2020.

A number of other contingent activities have been identified, however the economic status of these is unclear and RISC has not included these resources in the 2P+2C case presented in this report.

The resulting 2P and 2P+2C gross oil production forecasts developed by RISC are shown below.





Figure 4-7: RISC 2P and 2P+2C Production Forecasts

# 4.1.7. Manora Reserves and Contingent Resources

Tap's YE17 reserves estimates are based on technical recovery factors that range from about 20-35% for the individual faults blocks and zones with an average 2P technical recovery factor of about 30%. Tap estimate gross 2P oil reserves at 1/1/18 of 7.4 MMstb using an oil price of about US\$64/bbl which results in an economic cut-off rate of about 2 Mstb/d. These estimates do not include data from the recent Manora - 8/8ST, MNA-20 and -21 wells.

The following table summarises RISC's deterministic estimates of reserves and contingent resources associated with the development outlook described above and the oil prices and costs used in preparing this report.

Classification		Oil (MMstb)
2D Decomine at 1/C/2018	100%	6.3
2P Reserves at 1/0/2018	Тар WI	1.9
2C Contingent Resources	100%	2.2
20 contingent resources	Tap WI	0.6

#### Table 4-3: RISC Reserves and Contingent Resource Estimates at 1 June 2018



The reserves and resources have been estimated in accordance with the Petroleum Resources Management System (PRMS). The economic cut-off as estimated by BDO occurs at end December 2022 in the 2P case (as recommended by BDO, additional volumes to end February 2023 have also been included to fill next scheduled lifting) and end December 2024 in the 2P+2C case. The contingent resources are classified as Development Unclarified under PRMS guidelines. A number of other contingent activities have been identified, however the economic status of these is unclear and RISC has not included these resources in the 2C case presented in this report.

The overall 2P+2C recovery estimates represent a recovery factor of 33% reflecting the moderate efficiency of waterflood in these relatively complex reservoirs.

# 4.1.8. **Capital and Operating Costs**

Capital costs include new wells and flowlines, ongoing brownfields projects and planned modifications for debottlenecking.

Operator has achieved reductions in costs for new wells through efficiencies gained and the more competitive market since 2014. The 2018 Work Programme and Budget (WP&B) estimate for two development wells is US\$1.5 million (Tap Share) per well including flowlines. The actual costs for the wells was lower, and reflecting this, an average from the recent comparable wells of US\$1.2 million (Tap Share) has been used for future production and injection wells including flowlines. This is a low cost by industry standards, especially as the completions are relatively complex. However, the wells are shallow, the Operator has a track record of cost effective well delivery at Manora and the industry in Thailand in general has a reputation for cost effective drilling practices. Ongoing brownfields projects are approximately US\$0.3 million (Tap share) and the hydrocyclone project US\$0.2 million (Tap share).

The above costs are used in the 2P forecast. The 2018 Work Programme and Budget (WP&B) capital cost is summarised as follows:

Item	Capex US\$ million (Tap share)
Wells and flowlines	3.0
Brownfields	0.3
Hydrocyclones	0.2
Total	3.5

#### Table 4-4: 2018 WP&B Capital Cost Summary

For the 2P+2C case described above, additional capital costs for the three horizontal production wells and an additional water injection well and flowlines drilled in 2020 are estimated at US\$1.2 million (Tap share) each.

Operating costs include platform directs and operations support, well services and workovers, engineering and technical support, general and administration (G&A) and overheads. The 2018 WP&B is US\$17.6 million (Tap share) including a contingent amount for unplanned workovers and ESP changeouts. Operator forecasts beyond the 2018 WP&B were not available. Thus, operating cost forecasts have been developed



by RISC from a combination of actuals, the 2018 WP&B, JV meeting information, Tap correspondence and experience.

Tap estimated operating costs do not include any unplanned workovers and ESP changeouts in 2018, and for 2019 and beyond, assume that all workovers and ESP changeout costs are covered within other operating costs. RISC considers workover and ESP changeout costs are likely to remain similar to 2018 WP&B, including unplanned, and cannot be absorbed into other operating costs. Tap forecasts include 15% year on year cost reductions, except for the FSO lease, from 2020 onwards, which is greater and generally longer than the RISC forecast reductions. RISC experience is that such large target continual operating cost reductions are often not achieved nearing end of field life.

Operations support cost is US\$9.5 million (Tap share). The main cost is FSO rental and management which is essentially constant at US\$6.7 million p.a. (Tap share) reducing to US\$3.7 million p.a. (Tap share) in 2021 after the initial hire period of 7 years finishes on 31 July 2021 and the extended hire period commences.

Logistics costs are approximately US\$1.7 million (Tap share), with cost savings by optimising crew rosters and sharing with other operations have been achieved.

WPP directs are US\$2.0 million (Tap share) and includes the offshore contractor, maintenance and operator staff cost allocation. Increased costs with aging facilities, increased water production and operation near facilities limits (e.g. maintenance, H2S management) are expected by RISC. These increases can be expected to be mainly offset by efficiency gains.

Well services and workovers costs are US\$3.6 million (Tap share) including contingent costs. These costs include for 2 workovers and 3 ESP change outs in 2018. Whilst the Operator has been working to improve ESP performance, with water production increases and field production declines and from ESP run life experience and industry ESP performance, workover and ESP change outs are expected at similar frequencies.

Engineering and technical support (subsurface, HSSE, asset integrity and IT), G&A and overheads (Office G&A, head office overhead) are US\$2.4 million (Tap share) and are considered reasonable based on past costs.

The 2018 WP&B operating cost (including contingent well costs) is summarised as follows:

Item	US\$ million (Tap share)	Includes	
Operations support	9.5	FSO rental and management, logistics	
WPP directs	2.0	Offshore contractor, maintenance, operator staff cost allocation	
Well services, workovers	3.6	Workovers, well services, ESP changeouts	
Engineering and technical support	1.5	Subsurface engineering, HSSE	
G&A and overheads	0.9	Office G&A, head office overhead	
Total	17.5		

#### Table 4-5: 2018 WP&B Operating Cost Summary



For the 2P and 2P+2C operating and capital cost forecasts, reductions in costs have been applied variously from 2 to 5 years before end of field life (EoFL), with differing reductions dependent on the nature of the costs considering facilities age and industry experience.

Exploration and appraisal activities include wells, administration (including licence fees and permits) and studies. 2018 WP&B costs are for US\$0.9 million (Tap share) for a well which was drilled in May and US\$0.2 million for administration and studies. These costs have been in included in 2018, with reduced administration costs continuing until a year before end of field life for the 2P and 2P+2C forecasts.

Thailand 2016 decommissioning regulations include certain requirements that trigger activities including a security placement, initial and final decommissioning plans and cost estimates and environmental assessments. It is apparent that Manora is approaching some of the trigger points (e.g. 2P remaining reserves less than 40% and remaining production period less than 5 years). The Operator is indicating this will require planning and submission activities to be undertaken in 2019.

The Operators cost estimate for Manora decommissioning at June 2018 is US\$12.8 million (Tap share) based on complete removal of all structures and pipelines. Studies and planning pre-commitment costs of US\$1 million (Tap share) and abandonment of future wells are not included. The main cost is for platform and pipeline removal. The estimate is largely based on the Operator's inhouse calculations, some costs e.g. production preparation and support costs are not clearly included. A detailed cost estimate has not been prepared and would not be expected until 2019 and beyond when scope refinement and regulatory input was obtained.

While we recognise that the estimate is for standalone decommissioning and that opportunities will be explored for synergies with other projects decommissioning in the region, RISC considers the estimate to be low and we have added 10% to all decommissioning costs. This results in a cost to Tap of US\$15.4 million. Financial security requirements are not clear at this stage and RISC has assumed all costs are incurred near EoFL.

The operator's decommissioning cost estimate uncertainty is not clear, RISC considers at the current planning stage and definition a range of -40% to +50% at a 90% confidence level would be reasonable. This uncertainty would be expected to decrease with further definition, regulatory approvals and commitment to procurement.

The RISC capital and operating costs for the 2P and 2P+2C cases are summarised as below (some differences in totals and compared to above sections due to rounding).



2P Case US\$ million (Tap Share)	2018	2019	2020	2021	2022	2023	2024	2025	Total
Opex	17.0	16.7	16.9	14.7	10.8	1.7	-	-	77.8
Exploration	1.1	0.1	0.1	0.1	0.0	0.0	-	-	1.4
Capex	2.8	2.9	0.3	0.2	0.1	0.0	-	-	6.3
Abandonment	0.0	0.2	0.2	1.2	1.5	12.2	-	-	15.4
Total	21.0	19.9	17.5	16.1	12.4	14.0	-	-	100.9

Table 4-6: 2P Case Cost Summary - US\$ million (Tap Share)

Table 4-7: 2P+2C Case Cost Summary - US\$ million (Tap Share)

2P+2C Case US\$ million (Tap Share)	2018	2019	2020	2021	2022	2023	2024	2025	Total
Opex	17.0	17.0	17.2	15.6	14.6	13.1	11.0	0.0	105.5
Exploration	1.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	1.6
Capex	2.8	2.9	5.1	0.3	0.2	0.2	0.0	0.0	11.5
Abandonment	0.0	0.2	0.2	0.2	0.1	1.1	1.8	12.6	16.1
Total	21.0	20.2	22.6	16.2	14.9	14.4	12.8	12.6	134.6



# 5. Non-producing Properties

# 5.1. Myanmar

Tap holds a 95% interest in the Myanmar M/7 permit. Tap is currently in the process of exiting this permit and will be liable to pay a U\$\$200,000 performance bond.

Dormit		Valuation Range (US\$ million)	
Permit	Low	Best	High
M7	-0.2	-0.2	-0.2

#### Table 5-1: M7 Valuation (Net to Tap)

# 5.2. Australia

# 5.2.1. Introduction

Tap retains interests in several Australian Carnarvon and Bonaparte Basin licenses and permits. RISC has reviewed data for WA-25-L, WA-33-R, WA-72-R, and WA-34-R. RISC has not reviewed data for permits WA-22-L, WA-290-P, WA-515-P and WA-516-P which Tap has advised they are intending to exit at the earliest available opportunities. Tap announced on 26<sup>th</sup> June that it had completed the sale of its interests in TL/2 and TP/7 with an effective date of 18<sup>th</sup> June 2018 and these interests are not addressed further in this report. Tap's working interest and intent for each Australian permit is provided in Table 5-2.

Table 5-2: Tap Australian P	Permit Interests
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Permit	Tap Working Interest (%)	Operator	Expiry Date	Area km²	License/ Permit Type	Tap Intent
WA-25-L	15	Eni	Life of Field	402	Production Licence	Active
WA-22-L	15	Eni	Life of Field	80	Production Licence	Withdrawing
WA-33-R	22.474	Quadrant	20/09/2020	322	Retention Licence	Active
WA-72-R	20	BHP	10/04/2021	161	Retention Licence	Active
WA-34-R	12	Eni	22/12/2020	419	Retention Licence	Selling
WA-290-P	10	Quadrant	21/08/2020	321	Exploration Permit	Withdrawing
WA-515-P	100	Тар	5/09/2021	486	Exploration Permit	Intending to Withdraw
WA-516-P	100	Тар	5/09/2021	161	Exploration Permit	Intending to Withdraw





Figure 5-1: Tap Australian Permit/License Interests





Figure 5-2: Tap Carnarvon Basin Permit/License Interests

# 5.2.2. **WA-25-L**

Production license WA-25-L is located in the Barrow Sub-basin 80 km north of Onslow. Tap holds a 15% working interest in the license which is operated by ENI who hold 65% working interest. The remaining 20% working interest is held by Exxon Mobil.

The WA-25-L license contains the Woollybutt Oil Field which ceased production in 2012. The Woollybutt JVs (WJVs) are responsible for the decommissioning and abandonment of the Woollybutt facilities including 4 shut in production wells plus 3 suspended exploration/appraisal wells requiring P&A and the subsea equipment remaining after the FPSO left the field in 2012.

An environmental plan (EP) for field management, including surveys, inspections and maintenance, was approved by the regulator (NOPSEMA) in February 2017. Separate EPs for wells P&A and decommissioning the subsea equipment are planned to be submitted for regulatory approval late in 2018.



Decommissioning planning can be challenging, with scope refinement with extensive studies and interfacing with various regulators required to determine the optimum approach. There are many uncertainties including well P&A method, durations, alignment of activity with other fields, condition and integrity of wells, maintaining barriers, NORMs, amount of subsea equipment recovery and support. Industry experience is that there have been some reductions in final costs against estimates as well as significant overruns.

The Woollybutt operator has been refining the scope and method and is currently planning well P&A using a semi-submersible mobile offshore drilling unit (MODU) in Q4 2019 and Q1 2020. Tenders for the decommissioning and abandonment activities are yet to be issued and deferral in the implementation will increase annual study and management costs.

The operator's latest well P&A cost estimate for seven wells is approximately A\$12 million per well which is considered reasonable compared to known industry costs. The rig rates used are considered to be at a low point of market rates.

For the subsea equipment decommissioning and abandonment, previous Australian regulatory approvals have allowed for partial recovery with in-situ abandonment of some mooring and subsea equipment. The operator has considered two cases:

- 1. Partial removal with anchors, chains, flowlines and umbilicals remaining in-situ; and
- 2. Full recovery.

Partial removal is a contingent budget item for 2018 and is the base case for the EP submission. The basis for the subsea equipment estimate is not clear enough to test in detail, however, partial recovery is considered a reasonable approach. Full recovery cost estimates are also being developed.

Further abandonment and decommissioning costs include technical and field support, NORM disposal, FPSO contractor milestone payments, regulatory, legal and other costs.

Overall costs to Tap from the start of 2018 are estimated by the Operator as A\$17.3 million for the current base case. If full recovery of subsea equipment is required, the cost increases to A\$20.4 million. Abandonment provisions have been made by Tap since 2006, as at end of 2017 the Tap balance was A\$19.8 million.

RISC considers at the current planning stage and definition, and considering the scope and execution uncertainties, a range of -30% to +50% at a 90% confidence level would be reasonable for both the base and full subsea equipment recovery cases. This uncertainty would be expected to decrease with further definition, regulatory approvals and commitment to procurement.



A breakdown of the estimated Tap share of Woolybutt abandonment costs is presented in Table 5-3.

MA 25 L. Maskibutt Abandanment	Decommissioning Cost (A\$ million)			
WA-25-L - Woolybull Abandonment	Low	Best	High	
Base case	-26.0	-17.3	-12.0	
Full recovery	-30.6	-20.4	-14.2	
Tap abandonment provision	19.8	19.8	19.8	
Base case – future abandonment provision	-6.2	2.5	7.8	
Full recovery - future abandonment provision	-10.8	-0.6	5.6	

Table 5-3: Woolybutt Decommissioning estimate (Net to Tap)

Tap consider the WA-25-L permit to have no remaining exploration potential. There are no contingent resources on the license. The valuation range of WA-25-L is based on the decommissioning cost net of provision as presented in Table 5-4. These estimates are not discounted and do not take account of Tap's tax position.

#### Table 5-4: WA-25-L Valuation (Net to Tap)

Dormit	١	/aluation Range (A\$ million)	
Permit	Low	Best	High
WA-25-L	-10.8	1.0	7.8

### 5.2.3. WA-33-R

Retention lease WA-33-R is located in the Barrow Sub-basin 110 km north of Onslow. Tap holds a 22.474% working interest in the lease which is operated by Quadrant who hold 58.815% working interest. The remaining 18.711% working interest is held by Santos.

The WA-33-R lease covers the Maitland and the Spartan discoveries. Tap elected not to participate in the Spartan well (2016) through the Joint Venture sole risk provisions so does not retain any interest in that discovery.

The Maitland gas field is predominantly a gas accumulation in low permeability, fine grained, glauconitic sandstones within the Paleocene. The Maitland gas accumulation is not considered commercial at the present day due to the technically challenging reservoir, sand control issues in the thin reservoir sands, and the low flow rates achieved to date on tests. The development costs for the shallow low pressure gas reservoir are relatively high due to the likely necessity of compression and the amount of wells needed to achieve reasonable recoveries.

# 5.2.3.1. Maitland Resource Estimates

Gross in-place and recoverable resource estimates as calculated by the operator, Quadrant Energy, are presented in Table 5-5. RISC has not reviewed the input parameters for the resource estimate.



Maitland (WA-33-R)	P90	P50	P10	
In-Place Gas	Bcf	161	234	344
Recoverable Condensate	MMstb	2	3	4
Recoverable Gas	Bcf	84	127	194

#### Table 5-5: Maitland Resource Estimate (Gross for WA-33-R area only)

Tap has booked a 2C contingent resource of 34.8 PJ Gas for the Maitland Field, Tap 2017 Annual Report.

### 5.2.3.2. Work programme and commitments

There is a work commitment of A\$350,000 (net A\$79,000 to Tap) on the license up to September 20, 2020.

#### 5.2.3.3. Valuation

RISC consider the WA-33-R retention lease remaining potential to be limited to the Maitland subcommercial gas discovery. Comparable transactions are considered the most appropriate valuation method.

Hydra Energy purchased a working interest in the WA-33-R permit in a multi-permit deal with Pan Pacific Petroleum in 2012. RISC analysis of the Pan Pacific Petroleum – Hydra Energy transaction indicates that equity in the asset in 2012 was valued at A\$0.13 million per working interest percentage point.

The RISC valuation range for WA-33-R is presented in Table 5-6.

Table 5-6: WA-33-R	Valuation Range	(Net to Tap)
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Downit	Valuation Range (A\$ million)				
Permit	Low	Best	High		
WA-33-R	1	2.5	3.5		

#### 5.2.4. **WA-72-R**

Retention lease WA-72-R is located in the Barrow Sub-basin 120 km NNW of Exmouth. Tap holds a 20% working interest which is operated by BHP Billiton who hold 55% working interest. The remaining 25% interest is held by Quadrant Energy.

The WA-72-R license contains the Tallaganda Gas Discovery. The Tallaganda structure is an elongate northeast-southwest trending Triassic horst block approximately 11 km long and 2 km wide.

The Top Depth Structure Map for the Mungaroo Reservoir (Figure 5-3) shows the location of the discovery well. Tallaganda-1 encountered 240 m of gas (61 m net pay) in 3 separate columns. To the south a second discovery, Bunyip-1, was made in the adjacent permit. The northern extent to the Bunyip structure also extends in to the WA-72-R license.





Figure 5-3: Tallaganda Field Top Mungaroo Depth Structure Map

A seismic line through the Tallaganda Discovery is presented in Figure 5-4.



Figure 5-4: Tallaganda Seismic Section



Three sand units are recognised with the three units having separate gas gradients but interpreted to intersect a common water gradient.

# 5.2.4.1. Tallaganda Resources and Production Estimates

Tap has booked 45 Bcf (49 PJ) as a 2C contingent gas resource for the WA-72-R portion of the Tallaganda-Bunyip structure, Tap 2017 Annual Report. RISC has not reviewed these estimates.

The preliminary Tallaganda development plan includes two subsea wells drilled from one drill centre tied back to a manifold. From this point, the gas will be tied back to the Bunyip manifold and then exported through a pipeline for onshore processing along with gas from the Bunyip Field.

A schematic showing the development concept is shown in Figure 5-5.



Figure 5-5: Tallaganda Base Case Development Plan

# 5.2.4.2. Work programme and commitments

The WA-72-R lease has an A\$1 million work programme commitment (A\$200,000 net to Tap) up to 10 April 2021.

# 5.2.4.3. Valuation

Tap have provided RISC with evidence of an offer in 2017 for the WA-72-R lease. The sale of WA-72-R did not eventuate due to other factors concerning the buyer, however, RISC consider the 2017 offer to be a useful valuation benchmark. RISC's valuation range for the WA-72-R lease is presented in Table 5-7.

Table 5-7: WA-72-R Valuation (Net to Tap)



Dormit	Valuation Range (A\$ million)			
Permit	Low	Best	High	
WA-72-R	3	5	8	

# 5.2.5. **WA-34-R**

Retention lease WA-34-R is located in the Bonaparte Basin, 490 km west of Darwin. Tap holds a 12% working interest in the lease which is operated by ENI who hold a 39% working interest. Encana have a 39% working interest and the remaining 10% working interest is held by SK.

The WA-34-R lease contains the Prometheus/Rubicon Gas Discovery. Three wells have been drilled on WA-34-R, summarised in Figure 5-6.



Figure 5-6: Prometheus/Rubicon Gas Discovery Summary

The Prometheus/Rubicon Gas Discovery is considered well defined on 2D seismic data. The top of the Tern Formation shows a significant amplitude anomaly limited to the field area assumed to be a DHI.

The reservoir comprises sandstones of the Tern and Cape Hay Formations separated by a 9m thick Dombey Formation limestone.

In Prometheus-1 the log interpretation shows that the Tern Formation sandstones have 46m of net gas pay with average porosity of 24% and average net-to-gross of 84%. A further 17m of net pay are interpreted in the Cape Hay Formation with average porosity of 20% and average net-to-gross of 88%.



In Rubicon-1 the log interpretation shows that the Tern Formation sandstones have 25m of net gas pay with average porosity of 24% and average net-to-gross of 94%. The Cape Hay Formation is water bearing in Rubicon-1.

# 5.2.5.1. Prometheus/Rubicon Resource Estimate

The Prometheus/Rubicon field is currently considered sub-economic. Two development concepts for the purposes of determining the commercial viability of the field have been considered by the Joint Venture group:

- Gas supply to a customer in the Northern Territory;
- Gas supply to the Ichthys LNG plant in Darwin.

Economic modelling on the field using a range of gas sales price sensitivities shows that the Northern Territory market would require a gas price of approximately A\$12/GJ to achieve breakeven NPV, while the supply to Ichthys LNG requires approximately A\$10.30/GJ.

Tap has booked 45 PJ sales gas as a 2C contingent resource for the Prometheus/Rubicon Field, Tap 2017 Annual Report. RISC has not reviewed this estimate.

# 5.2.5.2. Work programme and commitments

There is a work commitment of A\$150,000 (net A\$18,000 to Tap) on the license up to December 22, 2020.

# 5.2.5.3. Valuation

RISC consider the WA-34-R remaining potential to be limited to the Prometheus/Rubicon sub-commercial gas discovery. Comparable transactions for sub-commercial gas in the region over the last five years are limited.

Tap advised RISC during the preparation of this report that they have been in discussions in relation to their interest in WA-34-R. The nature and form of these discussions has been used to guide the range of values indicated below in Table 5-8.

Downit	Valuation Range (A\$ million)				
Permit	Low	Best	High		
WA-34-R	0.4	0.5	0.6		

#### Table 5-8: WA-34-R Valuation Range (Net to Tap)



# 5.2.6. Australian Permits Contingent Resource Summary

A summary of the Contingent Resources in Tap's Australian permit interests is presented in Table 5-9. RISC has not reviewed these estimates.

	Тар		Tap share Net 2C Resource			
Permit	Working Interest (%)	Field	Oil (MMstb)	Gas (PJ)	Condensate (MMstb)	
WA-33-R	22.474	Maitland		34.8	0.3	
WA-72-R	20	Tallaganda		48.8	0.1	
WA-34-R	12	Prometheus/Rubicon		45.3		
Total				128.8	0.4	

#### Table 5-9: Tap Australian Permits Contingent Resource Summary (Net to Tap)

# 5.3. Value of Non-producing Properties

RISC has assessed the value of the Tap non-producing properties using various valuation methods as described in Section 2.2.3 and summarized in Table 5-10.

Country	Permit	Valu (U	uation Ra S\$ millio	inge on)	Valuation Method
		Low	Best	High	
Australia	WA-25-L	-8.2	0.7	5.9	Abandonment Cost Estimates (net of provision to date)
Australia	WA-33-R	0.8	1.9	2.7	Comparable Transactions
Australia	WA-72-R	2.3	3.8	6.1	Offer received
Australia	WA-34-R	0.3	0.4	0.5	Ongoing discussions
Myanmar	M7	-0.2	-0.2	-0.2	Work Programme
Arithme	tic Total	-5.1	6.6	14.9	
		P90	P50	P10	
Probabilistic Total		-2.5	6.6	12.2	

These valuations are net of work commitments in the assets and do not take account of Tap's tax position.

The values of individual assets are typically estimated at low, best and high values. As the low and high values of the non-producing assets portfolio are derived by the arithmetic addition of the individual assets



low and high values, respectively, they represent the possible extremes of the non-producing value envelope.

While acquirers of the individual permits could value the assets at either end of the value range, it is unlikely that potential buyers of the exploration asset portfolio would value all of the assets at either all of the low or all of the high estimated extremes.

Their own assessments of individual permits will span the low, best or high outcomes based on factors including: their strategic objectives and region or geological basin focus; assessment of an asset's prospectivity and associated geological risks; the fiscal and regulatory framework applicable to the asset; accessibility of commercialisation routes, including markets and infrastructure, for each asset; equity interests, operator capability and joint venture partners in each asset.

RISC accounts for the portfolio effects by estimating the low and high values of the portfolio of nonproducing assets using a probabilistic estimate of the value of the portfolio. There may be further adjustments required to the range based on judgement taking into account the specifics of the portfolio and market.

Adjusting for portfolio effects, RISC estimates a value range for the Tap non-producing assets of between approximately US\$ 2 million liability and US\$12 million.



# 6. Declarations

# 6.1. Qualifications

RISC is an independent oil and gas advisory firm. The RISC staff engaged in this assignment include qualified petroleum reserves and resources evaluators as specified in ASX listing rules, engineers, geoscientists and commercial analysts, each with many years of relevant experience and most have in excess of 20 years.

RISC was founded in 1994 to provide independent advice to companies associated with the oil and gas industry. Today the company has approximately 40 highly experienced professional staff at offices in Perth and Brisbane, Jakarta and London. Our services cover the entire range of the oil and gas business lifecycle and include:

- Oil and gas asset valuations, expert advice to banks for debt or equity finance;
- Exploration/Portfolio management;
- Field development studies and operations planning;
- Reserves assessment and certification, peer reviews;
- Gas market advice;
- Independent Expert/Expert Witness;
- Strategy and corporate planning.

The preparation of this report has been supervised by **Mr Ian Cockerill**, Head of Geoscience. Ian is a Petroleum Geologist with 19 years of experience and a successful record of value creation through oil and gas discoveries, new venture development, and asset / corporate promotion. Ian has a background in geological and geophysical interpretation with experience in conventional and unconventional exploration and development projects in a wide range of geological settings. He has worked in technical positions for Hunt Oil and Apache Energy and in executive positions for Transerv Energy, Verona Energy and TSV Montney. Ian is a member of the Petroleum Exploration Society of Australia (PESA), American Association of Petroleum Geologists (AAPG), South East Asia Petroleum Exploration Society (SEAPEX) and the Canadian Society of Petroleum Geologists (CSPG). Ian has an MSc. in Basin Evolution and Dynamics from Royal Holloway College, University of London, UK (1999) and a BSc. Geological Sciences with 1st Class (Honours) from the University of Leeds, UK (1996). Ian is a qualified petroleum reserves and resources evaluator (QPPRE) as defined by ASX listing rules and is a full time employee of RISC.

The summary of experience of other staff contributing to this report follows:

# Mr Geoff Salter

Geoff has over 37 years of global upstream experience in technical and management positions with major operators and consulting firms. Excellent technical skills, a strong ability to lead multidisciplinary teams combined with a thorough knowledge of the upstream business have led to a track record of delivering realistic assessments and added value.

Geoff has extensive experience of leading teams engaged in technical and commercial due diligence on acquisition opportunities, independent expert roles, independent reserves/valuation reporting, development planning, and decision analysis in the Asia-Pacific region, Europe, Middle East and Africa.



#### Mr Stephen Newman

Steve has over 32 years of experience in the international oil and gas industry, working for consultancy firms, and previously as an exploration and development geoscientist with BP and Woodside. Steve also has significant commercial and business experience through a four-year assignment to the Shell Global Strategy and Portfolio Team and as the Gas Supply Coordinator 'for the Woodside. Prior to joining RISC, Steve was the Asia Pacific Subsurface Manager for Baker RDS, a global subsurface consultancy. He has been at RISC for the last five years where he has worked on numerous assignments which include buy side due diligence, resource assessments, peer support, divestment support and expert witness.

#### Mr David Lesslie

An experienced oil and gas executive with more than 36 years' professional background in corporate, managerial, technical and consulting roles, David has significant experience in LNG and upstream oil and gas developments, from early concept selection and design through to commissioning and operations. A consultant specialist in providing advisory services in upstream oil and gas, LNG and Health, Safety and Environment (HSE) management, David has undertaken senior operational and technical (process and development engineering) roles. David has also undertaken corporate and operational HSE management roles with a record of improving performance and culture.

# 6.2. VALMIN Code and ASIC Regulatory Guides

This Report has been prepared by RISC. This Report has been prepared in accordance with the Code for the Technical Assessment and Valuation of Mineral and Petroleum Assets and Securities for Independent Expert Reports 2015 Edition ("The VALMIN Code") as well as the Australian Securities and Investment Commission (ASIC) Regulatory Guides 111 and 112.

# 6.3. Petroleum Resources Management System

In the preparation of this Report, RISC has applied the guidelines and definitions of the Petroleum Resources Management System approved by the Board of the Society of Petroleum Engineers in 2007 (PRMS).

# 6.4. Report to be presented in its entirety

RISC has been advised by Tap that this report will be presented in its entirety without summarisation.

# 6.5. Independence

This report does not give and must not be interpreted as giving, an opinion, recommendation or advice on a financial product within the meaning of section 766B of the Corporations Act 2001 or section 12BAB of the Australian Securities and Investments Commission Act 2001.

RISC is not operating under an Australian financial services licence in providing this report.

In accordance with regulation 7.6.01(1)(u) of the Corporations Regulation 2001. RISC makes the following disclosures:



- RISC is independent with respect to Tap and confirms that there is no conflict of interest with any party involved in the assignment;
- Under the terms of engagement between RISC and Tap for the provision of this report RISC will receive a time-based fee, with no part of the fee contingent on the conclusions reached, or the content or future use of this report. Except for these fees, RISC has not received and will not receive any pecuniary or other benefit whether direct or indirect for or in connection with the preparation of this report;
- Neither RISC nor any of its personnel involved in the preparation of this report have any material interest in Tap or in any of the properties described herein;
- RISC has not provided advice to Tap specifically in relation to the Proposed Transaction.

# 6.6. Limitations

The assessment of petroleum assets is subject to uncertainty because it involves judgments on many variables that cannot be precisely assessed, including reserves, future oil and gas production rates, the costs associated with producing these volumes, access to product markets, product prices and the potential impact of fiscal/regulatory changes.

The statements and opinions attributable to RISC are given in good faith and in the belief that such statements are neither false nor misleading. In carrying out its tasks, RISC has considered and relied upon information obtained from Tap as well as information in the public domain.

The information provided to RISC has included both hard copy and electronic information supplemented with discussions between RISC and senior Tap staff.

Whilst every effort has been made to verify data and resolve apparent inconsistencies, we believe our review and conclusions are sound, but neither RISC nor its servants accept any liability, except any liability which cannot be excluded by law, for its accuracy, nor do we warrant that our enquiries have revealed all of the matters, which an extensive examination may disclose. We believe our review and conclusions are sound but no warranty of accuracy or reliability is given to our conclusions.

Our review was carried out only for the purpose referred to above and may not have relevance in other contexts.

This report was substantially completed by 30 June 2018. We are not aware of any changes since that date that would have a material impact on the values and opinions contained within this report.



# 6.7. Consent

RISC has consented to this report, in the form and context in which it appears, being included in the independent expert report. Neither the whole nor any part of this report nor any reference to it may be included in or attached to any other document, circular, resolution, letter or statement without the prior consent of RISC.

This Report is authorised for release by Ian Cockerill dated 10 July 2018.

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Ian Cockerill Head of Geoscience



# 7. List of terms

# 7.1. Abbreviations

The following table lists abbreviations commonly used in the oil and gas industry and which may be used in this report.

Term	Definition
1P	Equivalent to Proved reserves or Proved in-place quantities, depending on the context.
1Q	1st Quarter
2P	The sum of Proved and Probable reserves or in-place quantities, depending on the context.
2Q	2nd Quarter
2D	Two dimensional
3D	Three dimensional
4D	Four dimensional
3P	The sum of Proved, Probable and Possible reserves or in-place quantities, depending on the context.
3Q	3rd Quarter
4Q	4th Quarter
AFE	Authority for expenditure
bbl	US barrel
bbl/d	US barrels per day
Bcf	Billion (10 <sup>9</sup> ) cubic feet
Bcm	Billion (10 <sup>9</sup> ) cubic meters
BFPD	Barrels of fluid per day
BOPD	Barrels of oil per day
BTU	British thermal units
BOEPD	US barrels of oil equivalent per day
BWPD	Barrels of water per day
°C	Degrees Celsius
Capex	Capital expenditure
САРМ	Capital asset pricing model
CGR	Condensate gas ratio
CO <sub>2</sub>	Carbon dioxide
сР	Centipoise
СРІ	Consumer price index
DEG	Degrees
DHI	Direct hydrocarbon indicator
DST	Drill stem test
E&P	Exploration and production
EMV	Expected monetary value
EOR	Enhanced oil recovery
ESMA	European Securities and Markets Authority



Term	Definition
ESP	Electric submersible pump
EUR	Estimated ultimate recovery
F	Degrees Fahrenheit
FDP	Field development plan
FEED	Front end engineering and design
FID	Final investment decision
FM	Formation
FPSO	Floating production, storage and offtake unit
FWL	Free water level
FVF	Formation volume factor
GIIP	Gas initially in place
GJ	Gigajoules (10 <sup>9</sup> J)
GOC	Gas-oil contact
GOR	Gas oil ratio
GRV	Gross rock volume
GSA	Gas sales agreement
GTL	Gas to liquid(s)
GWC	Gas water contact
H <sub>2</sub> S	Hydrogen sulphide
HHV	Higher heating value
ID	Internal diameter
IRR	Internal rate of return
JV(P)	Joint venture (parties)
Kh	Horizontal permeability
km <sup>2</sup>	Square kilometres
Krw	Relative permeability to water
Kv	Vertical permeability
kPa	Kilopascals (thousand Pascal)
Mstb/d	Thousand stock tank barrels per day
LIBOR	London inter-bank offered rate
LNG	Liquefied natural gas
LTBR	Long-term bond rate
m	Metres
MDT	Modular dynamic (formation) tester
mD	Millidarcies
MJ	Megajoules (10 <sup>6</sup> J)
MMbbl	Million US barrels
MMscf(/d)	Million standard cubic feet (per day)
MMstb	Million US stock tank barrels
MOD	Money of the day (nominal dollars)
MOU	Memorandum of understanding
Mscf	Thousand standard cubic feet



Term	Definition
Mstb	Thousand US stock tank barrels
MPa	Megapascal (10 <sup>6</sup> Pa)
mss	Metres subsea
MSV	Mean success volume
mTVDss	Metres true vertical depth subsea
MW	Megawatt
NPV	Net present value
NTG	Net to gross
ODT	Oil down to
OGIP	Original gas in place
OOIP	Original oil in place
Opex	Operating expenditure
owc	Oil-water contact
P & A	Plug and Abandon (abandonment of wells)
PBU	Pressure build-up
PJ	Petajoules (10 <sup>15</sup> J)
POS	Probability of success
PRMS	Petroleum Resources Management System
PSC	Production sharing contract
PSDM	Pre-stack depth migration
PSTM	Pre-stack time migration
psia	Pounds per square inch pressure absolute
p.u.	Porosity unit
PVT	Pressure, volume and temperature
QA/QC	Quality assurance/ control
rb/stb	Reservoir barrels per stock tank barrel (at standard conditions)
RFT	Repeat formation tester
RT	Rotary table or real terms, depending on context
SC	Service contract
scf	Standard cubic feet (measured at 60 degrees F and 14.7 psia)
Sg	Gas saturation
Sgr	Residual gas saturation
SRD	Seismic reference datum lake level
SPE	Society of Petroleum Engineers
s.u.	Fluid saturation unit
stb	Stock tank barrels
STOIIP	Stock tank oil initially In place
Sw	Water saturation
тсм	Technical committee meeting
Tcf	Trillion (10 <sup>12</sup> ) cubic feet
τJ	Terajoules (10 <sup>12</sup> J)
TLP	Tension leg platform



Term	Definition
TRSSV	Tubing retrievable subsurface safety valve
TVD	True vertical depth
US\$	United States dollar
US\$ million	Million United States dollars
WACC	Weighted average cost of capital
WHFP	Well head flowing pressure
WPC	World Petroleum Council
WTI	West Texas Intermediate

# 7.2. Definitions

The following table lists some definitions for terms commonly used in the oil and gas industry and which may be used in this report.

Term	Definition	
Contingent Resources	Those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations by application of development projects but which are not currently considered to be commercially recoverable due to one or more contingencies. Contingent Resources are a class of discovered recoverable resources as defined in the SPE-PRMS.	
Discount Rate	The interest rate used to discount future cash flows into a dollars of a reference date	
Expectation	The mean of a probability distribution.	
P90, P50, P10	90%, 50% & 10% probabilities respectively that the stated quantities will be equalled or exceeded. The P90, P50 and P10 quantities correspond to the Proved (1P), Proved + Probable (2P) and Proved + Probable + Possible (3P) confidence levels respectively if probabilistic techniques are used.	
Possible Reserves	As defined in the SPE-PRMS, an incremental category of estimated recoverable volumes associated with a defined degree of uncertainty. Possible Reserves are those additional reserves which analysis of geoscience and engineering data suggest are less likely to be recoverable than Probable Reserves. The total quantities ultimately recovered from the project have a low probability to exceed the sum of Proved plus Probable plus Possible (3P) which is equivalent to the high estimate scenario. When probabilistic methods are used, there should be at least a 10% probability that the actual quantities recovered will equal or exceed the 3P estimate.	
Probable Reserves	As defined in the SPE-PRMS, an incremental category of estimated recoverable volumes associated with a defined degree of uncertainty. Probable Reserves are those additional Reserves that are less likely to be recovered than Proved Reserves but more certain to be recovered than Possible Reserves It is equally likely that actual remaining quantities recovered will be greater than or less than the sum of the estimated Proved plus Probable Reserves (2P). In this context, when probabilistic methods are used, there should be at least a 50% probability that the actual quantities recovered will equal or exceed the 2P estimate.	
Prospective Resources	Those quantities of petroleum which are estimated, as of a given date, to be potentially recoverable from undiscovered accumulations as defined in the SPE-PRMS.	
Proved Reserves	As defined in the PRMS, an incremental category of estimated recoverable volumes associated with a defined degree of uncertainty Proved Reserves are those quantities of petroleum, which by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be commercially recoverable, from a given date forward, from known reservoirs and under defined economic conditions, operating methods, and government regulations. If deterministic methods are	



Term	Definition
	used, the term reasonable certainty is intended to express a high degree of confidence that the quantities will be recovered. If probabilistic methods are used, there should be at least a 90% probability that the quantities actually recovered will equal or exceed the estimate. Often referred to as 1P, also as "Proven".
Reserves	Reserves are those quantities of petroleum anticipated to be commercially recoverable by application of development projects to known accumulations from a given date forward under defined conditions. Reserves must further satisfy four criteria: they must be discovered, recoverable, commercial, and remaining (as of the evaluation date) based on the development project(s) applied. Reserves are further categorised in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by development and production status.
Working	A company's equity interest in a project before reduction for royalties or production share owed to
interest	others under the applicable fiscal terms.

# **APPENDIX 2. RECENT ANNOUNCEMENTS**

A list of documents filed with ASX by or concerning Tap Oil since its last Annual Report until 10 July 2018 (being the last practicable date prior to finalising the Supplementary Target's Statement) is set out in the table below:

Date	Announcement
05/04/2018	Corporate Governance Statement
05/04/2018	Appendix 4G
16/04/2018	Resignation of Director
16/04/2018	Final Director's Interest Notice
23/04/2018	Notice of Annual General Meeting/Proxy Form
30/04/2018	March 2018 Quarterly Report
30/04/2018	Manora Oil Field – Manora 8 Exploration Well
02/05/2018	Board Update
02/05/2018	Unconditional on-market Takeover Bid for Tap Oil
02/05/2018	Unconditional on-market Takeover Bid for Tap Oil
02/05/2018	Tap advises take no action regarding Risco takeover bid
02/05/2018	Initial Director's Interest Notice
03/05/2018	Change in substantial holding
03/05/2018	Becoming a substantial holder
03/05/2018	Manora-8 Exploration Well Update
04/05/2018	Addendum to Notice of AGM and Replacement Proxy
07/05/2018	Exploration, Appraisal and Development Drilling Update
15/05/2018	Target's Statement
16/05/2018	Replacement Bidders Statement
16/05/2018	Supplementary Bidders Statement
16/05/2018	Cover letter from Jones Day
16/05/2018	Replacement Bidders Statement (mark-up)
16/05/2018	Announcement by Risco of Offer Period extension
16/05/2018	Supplementary Broker Announcement
17/05/2018	ASIC extension of time for dispatch of target statement
18/05/2018	Target's Statement dispatched to shareholders
21/05/2018	Manora-8 well spuds
25/05/2018	Presentation (AGM presentation)
25/05/2018	Results of Annual General Meeting
25/05/2018	Final Director's Interest Notice
28/05/2018	Manora-8 Exploration Well – Final Drilling Update
29/05/2018	Appointment of Chairman
04/06/2018	Manora-8ST1 appraisal well encounters oil bearing zones
13/06/2018	MNA-21 Development Well – Drilling Update
20/06/2018	MNA-20 Development Well – Drilling Update
22/06/2018	Extension of Offer Period
22/06/2018	Extension of Offer Period – Broker Announcement
25/06/2018	Extension of Risco Offer – Continue to Take No Action
26/06/2018	Sale of interest in TL/2 and TP/7