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# Quarterly Activities Summary for Period Ended 30 June 2018

### **Highlights:**

#### Australia - WA-488-P (Beehive)

- Environmental Plan for WA-488-P Beehive 3D Seismic Survey approved
- Polarcus contracted to undertake survey acquisition with completion before end August 2018

#### Cuba - Block 9 PSC

- Independent gravity and magnetic study verifies Melbana's structural interpretation; strongly supports Zapato prospect
- Regulatory approvals for drilling activities progressing as planned
- Drilling rig identified, with ongoing commercial discussions with preferred drilling contractor for first Block 9 well
- Farmout process active with multiple potential farminees

#### New Zealand - PEP51153

 Operator reports Pukatea-1 flow test, JV reviewing various production scenarios over medium term to bring the Puka field back online

#### MELBOURNE, AUSTRALIA (12 July 2018)

Melbana Energy Limited (ASX: **MAY**) ("**Melbana**" or the "**Company**") provides the following summary in relation to its activities during the quarter ended 30 June 2018.

### Overview

The quarter saw Melbana continue to progress its key high impact projects with significant progress towards commencing the 3D Seismic Survey to the WA-488-P evaluate Beehive Prospect, including the granting of an environmental permit by the regulator (NOPSEMA) and the award of a contract to Polarcus to acquire the Survey. The giant Beehive Prospect is one of the largest undrilled hydrocarbon structures in Australia. The 3D Seismic Survey is being operated by Australian energy





company Santos pursuant to an Operations Services Agreement and is fully funded by French major Total and Santos.

Preparatory work continued in Cuba in readiness for the planned drilling program in Block 9.

From a permitting perspective, progress was made during the quarter towards receiving all approvals to drill the currently preferred Alameda and Zapato exploration wells. Melbana's Cuba team has been actively progressing stakeholder engagement activities with town hall type meetings being held with local residents, regional councils and other interested parties for each wellsite. The meetings provided an opportunity for local stakeholders to directly hear Melbana's plans and address any concerns they had. The program has been well received, with full engagement and support for the plans being offered by local authorities.



Melbana's Cuba Representative Dr Rafael Tenreyro reviews plans for drilling with local stakeholders

An international tender was completed during the

quarter for the supply of a drilling rig and bids submitted were evaluated, including an option that provided for a "turn key" type arrangement which was submitted by an established operating entity in Cuba with access to local drilling rigs, inventory and established local service contracts. At this stage this is the preferred option due to the substantial reduction in operational complexity, with a drilling rig being identified by the contractor and a drilling window nominated as notionally commencing in December 2018. The proposed rig is currently planned to be re-fitted and refurbished for maintenance and operational purposes in late 3Q 2018 and as such rig availability may be delayed until 1Q 2019. The final decision on drilling contractors, drilling target and timing will be influenced by a number of factors, including the status of commercial negotiations, any incoming party into Block 9 and their preferred drilling targets and confirmation of drilling rig availability.

During the quarter Melbana advised that the recently completed gravity and commissioned magnetic study by Melbana and undertaken by Cuba's specialist technical laboratory CEINPET over the 71 million barrel<sup>1</sup> Zapato prospect indicated a strong gravity and magnetic alignment with the structural interpretation Melbana's technical team derived from seismic and surface data. This result is supportive of Melbana's assessment of the prospectivity of Zapato as a large carbonate duplex



Melbana's Chief Geologist Errol Johnstone reviews the positive results of the Gravity & Magnetic Study to Block 9 Technical Committee in Havana, Cuba

structure along strike from the Motembo discovery which produced light 56°API oil.

Block 9 farmout activities continued during the quarter, with multiple interested multinational parties engaged in assessing the prospectivity of the Block. Technical work on the Santa Cruz incremental oil opportunity (see ASX Release 8 March 2018) continued during the quarter with the focus on developing a geological structural model to facilitate identification of opportunities to increase oil production. Opportunities identified will form



the basis of the commercial assessment of the potential opportunity to generate value from a a long term incremental oil recovery contract.

During the quarter TAG Oil (70% and Operator) announced that the Pukatea-1 well was completed at the Mt. Messenger formation, where 12.9m of oil-and-gas bearing sands were encountered. The Operator has reported that over a 12-hour test period, using a 24/64" choke setting, the well flowed at a stabilized rate of approximately 276 boe/d (74% oil) without the need for artificial lift. The Joint Venture will review various production scenarios over the medium term to bring the Puka field online.

On the corporate side, it has been a busy quarter with the Company considering an number of corporate initiatives. A potential dual listing on the UK's Alternative Investment Market (AIM) is being actively considered, as it is clear there is strong UK investor interest in Cuba as an investment destination and in particular, Melbana's world class portfolio. A General Meeting has been scheduled to, amongst other things, provide the necessary constitutional changes required to enable an AIM listing should the Melbana Board determine to do so in the future. These proposed changes to the constitution are preparatory only, provide flexibility only and will have no effect unless the Board determines to proceed with an AIM listing.

To facilitate our business development activities Melbana has engaged McDaniel & Associate Consultants, an independent expert with substantial Cuban experience, to assess the prospective resources available in Block 9 with their assessment report expected to be available in the next quarter.

During the quarter Melbana entered into a Loan Facility (see ASX Release of 19 April 2018) for US\$2.5 million enabled by the provision of a personal guarantee from Melbana's Chairman Mr Andrew Purcell. The purpose of the Loan Facility was to accelerate access to cash reserves currently on a fixed term deposit as security for the Block 9 work programme. As was the case for the first sub-period, the bank guarantee will be released as the work program is completed. In proceeding with the Loan Facility, the Board considered all options, including funding the working capital requirement with an equity raise, however the Board concluded it was in the best interest of all shareholders to pursue the Loan Facility when considering the market conditions at the time. In return for the Personal Guarantee provided by Mr Purcell, Mr Purcell has been granted, subject to shareholder approval, 80 million options to acquire Melbana shares at a strike price of 2.2 cents per share with other conditions as outlined later in this report (*See ASX Release 19 April 2018*).

#### Commenting on the Quarter's activities Melbana Energy's CEO Robert Zammit said:

"The quarter saw progress in key focus areas. Significantly, the Beehive 3D Siesimic Survey crystalised as a near term activity with the fast track granting of the Environmental Permit by the regulator and the awarding of a contract to Polarcus to undertake the survey imminently. Our Cuba activities continued to progress from a drilling readiness standpoint and our farmout discussions are also progressing. We will continue to focus on this area during Q3. We also remain committed to further focusing our portfolio on our core business growth opportunities in Cuba and Australia and have an ongoing commitment to reviewing corporate opportunities. Melbana looks forward to keeping the market informed as it progresses with Cuba, Beehive and our other projects."

Attachments: Activity Summaries by Project Area



<sup>1</sup>**Prospective Resources Cautionary Statement:** The estimated quantities of petroleum that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Future exploration appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.

<sup>2</sup>Contingent and Prospective Resources: The information that relates to Contingent Resources and Prospective Resources for Melbana is based on, and fairly represents, information and supporting documentation compiled by Dean Johnstone, Senior Geologist at Melbana. Mr Johnstone B.Sc has over 34 years of relevant experience, is a member of the American Association of Petroleum Geologists, and consents to the publication of the resource assessments contained herein. The Contingent Resource and Prospective Resource estimates are consistent with the definitions of hydrocarbon resources that appear in the Listing Rules. Conversion factors: 6 Bscf gas equals 1 MMboe; 1 bbl condensate equals 1 boe.

<sup>3</sup> COS means "Chance of Success"



# <u>Cuba</u>

As an early mover into Cuba, Melbana is now one of the few western companies (and the only ASX listed company) with an established footprint in the high potential Cuban hydrocarbon sector. The geology of Cuba has analogies to petroleum systems in which Melbana's technical personnel have significant experience. Melbana sees substantial hydrocarbon potential in Cuba overall and Block 9 in particular, which is on-trend with Cuba's northern fold belt.

# Santa Cruz Incremental Oil Opportunity

The Santa Cruz oil field is located approximately 45km from Havana between Boca de Jaruco and Canasí oil fields and approximately 150 km west of Melbana's existing Block 9. Santa Cruz is in the northern foldbelt of Cuba – the trend that is responsible for the vast majority of Cuba's oil and gas production.



The Santa Cruz oil field was discovered in 2004 when drilled via a land based rig as a deviated well out to the offshore structure. It initially tested at 1,250 barrels per day, with oil quality varying from 10°API to 22°API, typical of most Cuban oil production. Initial estimates reported that Santa Cruz had up to 100 million barrels of recoverable oil with appraisal drilling confirming a field area of greater than 20km<sup>2</sup> and a significant oil column of 250 metres. Santa Cruz was declared commercial in 2006 and produced in excess of 1 million barrels in the first year. By 2012 production was approximately 1,600 barrels/day and the field had produced 7.4 million barrels from 18 wells.



On 8 March 2018, Melbana announced it had executed an exclusive agreement with Cuba's national oil company, Cubapetroleo, for the assessment of opportunities to enhance current oil production from the Santa



Cruz oil field. The agreement grants Melbana an exclusive right to assess potential for the enhancement of oil production from the Santa Cruz oil field and negotiate a long term incremental oil recovery agreement.

#### Block 9

A short video on Cuba Block 9 is available on the Melbana website (melbana.com) under News and Broadcasts / Broadcasts and Videos.

The Cuba Block 9 Production Sharing Contract, covers a large area of 2,380km<sup>2</sup> onshore on the north coast of Cuba, 140 km east of Havana in a proven hydrocarbon system and along trend with the multi-billion barrel Varadero oil field.

Melbana has identified Block 9 as one of the world's most exciting exploration plays with exploration potential of approximately 12.5 billion barrels of Oil-in-Place with a Prospective (Recoverable) Resource of 637 million barrels (Best Estimate, 100% basis)<sup>1</sup> of potentially high quality oil. The prospectivity assessment also identified 19 individual prospects and leads which the Company has been prioritising so as to focus on the highest impact, lowest risk drill opportunities. Melbana has engaged McDaniel & Associate Consultants, an independent expert with substantial Cuban experience, to assess the prospective resources available in Block 9 with their assessment report expected to be available in 3Q 2018.

The minimum work program for the Block 9 second exploration sub-period, which commenced on 3 November 2017 and continues for two years, includes the completion of a gravity study and the drilling of one exploration well. Melbana has completed the gravity study component of the work program.



#### Alameda-1 – High Priority Exploration Opportunity



The highest ranked exploration drilling opportunity is the proposed Alameda-1 well which will test a combined exploration potential of over 2.5 billion barrels Oil-in-Place and 130 million barrels of recoverable oil on a 100% unrisked, Best Estimate basis<sup>1</sup> and over 400 million recoverable barrels<sup>1</sup> aggregate high side potential (Table 1 and Table 2). This exploration well has been designed as a mildly deviated well, with a total measured depth of 4,000m to enable the well to penetrate three independent exploration objectives; the primary Alameda objective as well as the shallower N and Amistad objectives.



While characterised as an exploration well, the chance of success at Alameda-1 benefits from two old wells, Marti-2 and Marti-5, both of which recovered oil from Amistad and Alameda objectives respectively. The Amistad objective is a structure indicated on seismic as being updip of the tested oil recoveries in the Marti-2 well. Alameda-1 is estimated to take approximately 80 days to drill.

Objective	Chance of Success	Oil-in-Place (MMstb)			
	%	Low	Best	High	mean
Amistad	17%	40	503	1,851	759
N	22%	75	818	2,580	1,114
Alameda	32%	62	1,293	4,278	1,829

Table 1: Exploration Oil-in-Place estimates for objectives of proposed Alameda-1 well

Objective	Chance of Success	Recoverable Prospective Resource (MMstb)			
	%	Low	Best	High	mean
Amistad	17%	2	25	93	38
N	22%	4	41	129	56
Alameda	32%	3	65	214	91

Table 2: Exploration Prospective Recoverable Resource<sup>1</sup> estimates for objectives of proposed Alameda-1 well



# New Zealand: Taranaki Basin PEP51153 (Melbana 30%, TAG 70% & Operator)

Melbana holds a 30% interest in PEP51153 operated by TAG Oil ("TAG", 70%), which covers an area of approximately 85 square km (21,000 acres) and is located in the productive onshore Taranaki Basin of New Zealand.

TAG operates the nearby Cheal production complex, less than 10km from the Pukatea location. An independent expert values TAG's 2P reserves in nearby fields at ~A\$20/barrel (on an NPV10 basis)<sup>4</sup>.

PEP51153 contains the suspended Puka oil field. Three wells have been drilled since the Puka oil field was discovered in 2012, with the Puka-1 and Puka-2 wells producing 100 barrels/day from the Mt. Messenger formation before being shut in due to low oil prices and mechanical issues. Recently, the Pukatea-1 well which was primarily targeting a deeper objective successfully intersected the Mt Messenger formation.

A successful production test of the Pukatea-1 oil zone found in the Mt. Messenger formation has flowed oil at an initial rate of 600bbls per day on a 28/64" choke. The well flowed naturally without the aid of artificial lift. Testing of the zone at various flow rates continued using a variety of choke sizes.

On 26 March, 2018, TAG Oil (70% and Operator) announced that the Pukatea-1 well was completed at the Mt. Messenger formation, where 12.9m of oil-and-gas bearing sands were perforated. The Operator has reported that over a 12-hour test period using a 24/64" choke setting, the well flowed at a stabilized rate of approximately 276 boe/d (74% oil) without the need for artificial lift. The Joint Venture will review various production scenarios over the medium term to bring the Puka field online.

Melbana is currently undertaking a strategic review of its New Zealand activities.

### Puka Contingent Resource (pre February 2018 Mt Messenger Result)<sup>2</sup>

100% MMboe*	1C	2C	3C
Puka	0.3	0.6	1.8

<sup>&</sup>lt;sup>4</sup>TAG Oil media release 20 June 2017







# Australia

### Bonaparte Gulf: Petrel sub-Basin: WA-488-P (Melbana 100%<sup>5</sup>)

A short video on Beehive is available on the Melbana website (melbana.com) under News and Broadcasts / Broadcasts and Videos.

WA-488-P is located in the southern Bonaparte Gulf and covers an area of 4,105km<sup>2</sup>. The permit was awarded to Melbana in May 2012 as part of the acreage Gazettal Round.

Leveraging the 2011 Ungani-1 oil discovery in Carboniferous aged reservoirs in the nearby Canning Basin, Melbana has identified the giant Beehive prospect, analogous to the giant Tengiz field in the Caspian Sea but a new play type within the Bonaparte Basin.

On 12 December 2017, a Seismic Funding and Farmin Option Agreement was signed with Total and Santos. The agreement provides for Total and Santos to fully fund 100% of the cost of a 3D seismic survey over the Beehive prospect in consideration for which, they are granted an option (exercisable together or individually) to acquire a direct 80% participating interest in the permit. If the option is exercised, Total and/or Santos will fully fund the costs of all activities until completion of the first well in the WA-488-P permit. In the event of a commercial discovery, Melbana will repay carried funding from its share of cash flow from the Beehive field. Melbana will have no repayment obligations for such carried funding in the event there is no commercial discovery and development in WA-488-P.



The Beehive 3D Seismic Survey is being operated by Australian energy company Santos pursuant to an Operations Services Agreement and is fully funded by French major Total and Santos. The survey is expected to be completed before the end of August 2018.

The survey acquisition area is approximately 600 km<sup>2</sup> with a larger operational area around it to allow for vessel turns and testing of equipment. The operational area is located in the Joseph Bonaparte Gulf, approximately 225 km west-southwest from Darwin.

Melbana submitted an application for an environmental permit to the Australian regulator (NOPSEMA) in February 2018 to undertake the Beehive 3D Survey which was approved in May (See ASX Release 23 May 2018). Subsequently Polarcus was awarded the contract to acquire the 3D Survey.(See ASX Release 8 June, 2018)

<sup>&</sup>lt;sup>5</sup> Total and Santos hold a cumulative 80% option to acquire a Participating Interest in WA-488-P



# Ashmore Cartier Region, Timor Sea: Vulcan Sub-Basin

## AC/P50 and AC/P51 (Melbana 55%<sup>6</sup>)

AC/P51 contains the Ramble On prospect, a new play type that has proven analogues in other Basins. This prospect is on trend with the recently reported Auriga West-1 gas discovery near Crux gas/condensate field, resulting in renewed industry interest in the region.

The seismic reprocessing undertaken earlier in 2017 has resulted in significantly improved data quality. Melbana's preliminary assessment of the recent 3D seismic broadband reprocessing results has identified the potential for additional prospectivity in the Permits resulting from improved data quality, including an amplitude-supported objective immediately above the existing Ramble On prospect. In the right conditions, an amplitude anomaly can be a direct indicator of hydrocarbons.



During the quarter Melbana and its Joint

Venture partner applied to the regulator (NOPTA) for various amendments to the work program to facilitate further technical work being undertaken on the Blocks. Approval was provided subsequent to the quarter *(see ASX Release 4 July 2018).* 

Melbana considers the Ashmore Cartier area as non-core and is considering divestment options.

<sup>6</sup>Both permits are subject to an option to acquire a 5% interest currently held by Far Cape Energy Pte Ltd ("Far Cape"). Under this option agreement, Melbana will carry Far Cape's participating interest in the first well should Melbana elect to drill a well in either permit.



# **Tassie Shoal Gas Processing Projects**

### (Melbana 100%)

The Tassie Shoal Projects encompass a single offshore LNG and two world scale offshore Methanol production facilities. Australian Federal Environmental approval has been granted to construct the production facilities offshore on Tassie Shoal, a unique shallow water site. The Tassie Shoal Projects were designed to process raw gas from surrounding discovered but undeveloped natural gas fields.

Industry participants are expected to seek opportunities to collaborate to secure lowest cost and efficient resource development in Australia, especially as titleholders with stranded discoveries are under resource tenure pressure. The unique concept of the Tassie Shoal Projects represents an opportunity for with collaboration Melbana to develop а commercialisation path for the significant, discovered but undeveloped resources in the region, for the benefit of all stakeholders.



In July 2017 it was reported by ConocoPhillips that the Barossa gas field is proposed to be developed as feedstock to the Darwin LNG facility from 2023<sup>7</sup>. According to Santos, the Barossa FEED decision consolidates its position as the leading candidate for DLNG backfill when Bayu-Undan production ceases in the early 2020s<sup>8</sup>. This leaves the Evans Shoal Gas field (~28% CO<sub>2</sub>) without a publically stated development path.

The Tassie Shoal LNG and/or Methanol Projects, with their long term environmental approvals in place, remain as potential development paths for stranded Evans Shoal gas. The Tassie Shoal LNG Project, with its shallow water platform fixed to seabed design, remains a low cost development option for LNG production should a means of disposing of the high  $CO_2$  content in Evans Shoal gas be economically achieved. Alternatively the Tassie Shoal Methanol Project, with its ability to receive and process raw gas with a 30%  $CO_2$  content, remains an alternative development path should the titleholders prefer to proceed with a known achievable low cost development plan.

<sup>7</sup>ConocoPhillips announcement 13 July 2017

<sup>8</sup>Santos announcement 23 April 2018