Melbana Energy

ABN 43 066 447 952

Melbana Energy Limited
Mezzanine Floor, 388 George St
Sydney NSW 2000
Australia

T +61 2 8323 6600
E admin@melbana.com
www.melbana.com

ASX ANNOUNCEMENT

15 April 2025

Block 9 Operations Update

Melbana Energy Limited (ASX: MAY) (**Melbana**) provides this operational update regarding Block 9 PSC onshore Cuba, for which it is operator and holds a 30% interest.

Highlights

- **Successful workover of Unit 1B delivers a significant production rate increase (488 BOPD[1] v 293 BOPD previously[2]).**
- **Workover now completed - rig released. Well now on full time production to continue building inventory for first shipment.**
- **Drilling of Unit 1B's first production well (Amistad-2) expected to commence late next month.**

Melbana Energy's Executive Chairman, Andrew Purcell, commented: *"The workover has delivered a 66% increase in the production rate and given us a lot of new data to analyse about how to maximise production from this reservoir. Unit 1B has shown it can produce at 1,235 Barrels of oil per day from an appraisal well[3]. We are looking forward to seeing what it can do through a dedicated production well that has had everything we've learned to date incorporated into its design."*

Workover Program

The Alameda-2 appraisal well was drilled in 2023 to test the oil quality and reservoir properties of three oil bearing units encountered within the first of three vertically stacked and geologically independent oil-bearing units (designation Amistad) encountered by the Alameda-1 exploration well the previous year. Unit 1B was shown to be the best of these units, producing a 19° API, lower viscosity, oil at a stablished average flow rate of 1,235 BOPD[3].

The well was then shut in for safety reasons to allow the Alameda-3 appraisal well to be drilled off the same pad. When the well was subsequently reopened, it was found that the average production rate had dropped to 293 BOPD. Analysis of logs, cores and other data concluded that the fluids used to shut in the well[4] may have damaged the formation near the well bore. A workover program to try and repair this damage was designed using the results from studies examining the interaction of various fluid types and compositions with formation samples taken from Unit 1B.

[1] See Glossary on page 8
[2] See ASX announcement dated 2 November 2023
[3] See ASX announcement dated 28 August 2023
[4] See first ASX announcement dated 19 November 2024

The workover of Unit 1B in Alameda-2 well commenced on Monday, 17 February 2025. Operations proceeded during daylight hours only for safety reasons, except where operational requirements dictated 24-hour duties, which contributed to the workover taking longer than planned.

Figure 1 – Service rig in operation during the Unit 1B workover

Key steps in the workover program included using a service rig to pull the completion, adding new perforation intervals in both the upper and lower Unit 1B, undertaking an acid wash and squeeze then re-running the completion. Following completion, an extended initial period of clean-up flow was undertaken to unload heavy-weight completion brine and hydrochloric acid lost to the formation during operations. During the initial cleanup the well was flowed through a variety of choke sizes (predominantly 32/64" as well as surged through an open 110/64" choke) and, at times, shut in. A peak total fluid rate of 4,167 BPD was recorded whilst surging the well.

Static gradient surveys and a memory production log (MPLT) survey were run during the initial cleanup flow. The MPLT confirmed that a pump would accelerate the recovery of the heavy-weight completion brine used to control the well. A progressive cavity pump (PCP) was run and a second acid treatment conducted. The bulk of the heavy completion brine was recovered during the second cleanup flow period. The well was then shut in for 12 hours and flow tested at a constant pump rate for 12 hours resulting in an average 488 BOPD plus 7 BPD of water (completion brine) before shutting in and commencing rig-down of the service rig.

A total of 5,030 Barrels of crude oil were produced during the cleanup flow and test periods, bringing total production from the well to date to about 10,000 Barrels.

We expect Alameda-2 to continue to clean-up and return small volumes of completion brine through the production system over the coming weeks. Full-time production from the well has now commenced.

Figure 2 - Loading of Unit 1B crude oil to tanker at the Alameda-2 wellsite.

The potential remains for further stimulation during any future well intervention and lessons learned from this first stimulation program are directly applicable to any such future work. Our studies have also indicated that near well bore damage may have also been responsible for the Alameda-3 results, which is now a candidate for future remediation, too. Otherwise, the team's full focus can now be directed to preparations for the upcoming drilling of Amistad-2.

Remedial acid stimulations, such as these, are optimally conducted with the benefit of a coiled-tubing unit (CTU), both to direct acid and then to unload a well using gaseous nitrogen. As there wasn't a CTU or nitrogen service available, the operations team conducted the remedial acidization with the available service rig and the PCP was used to unload the heavy-weight completion brine. Given the effectiveness of the acid treatment, consideration is now being given to it becoming a standard part of the completion plan for all future wells. Investigations are therefore underway into the procurement of a dedicated CTU.

Melbana Energy's Chief Operating Officer, Chris Thompson, commented: *"We are pleased to have successfully completed the workover operation and to be establishing full-time production from the well. The team has worked diligently, creatively and scientifically to identify the likely causes of the observed formation damage then to develop a robust solution.*

We are energised to deliver Amistad-2 using the new, non-damaging, drilling fluid we have developed - Melbana RDF."

Melbana Reservoir Drilling Fluid (RDF)

Following the observation of formation damage during extended production testing of Alameda-2 in 2023 and 2024, and subsequent likely formation damage in Alameda-3, the Company decided to investigate alternate drilling fluid systems.

Our technical team had been analysing both routine and special core analysis results from previous drilling programs and commissioned further rock and fluid compatibility testing to inform operations for both the Alameda-2 workover and new Unit 1B targeted drilling.

Scanning electron microscope and computed tomography (CT) images of Alameda-2 core samples provided direct indications of formation damage, including barite embedment and crystalline precipitates within pores and fractures in core plugs (see Figure 3). This information was incorporated into the extensive chemical analysis, development and final design of a proprietary RDF which was validated by associated and extensive fluid and rock compatibility testing. This testing confirmed the suitability of our RDF formula and its compatibility with the Unit 1B reservoir.

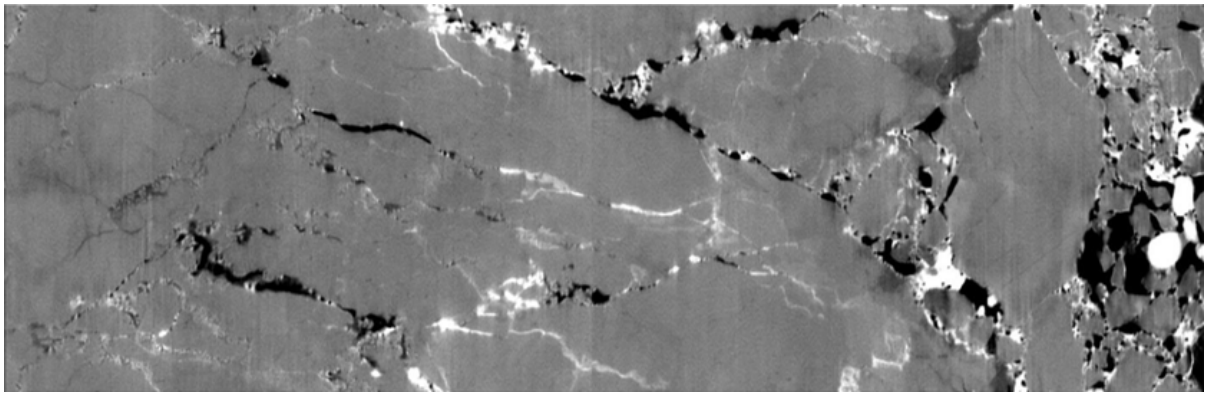

Figure 3 – CT scan showing barite embedment (white) in open fractures (black)

Melbana's RDF is a water-based drilling fluid that is designed to minimise the risk of formation damage whilst maintaining the ability to safely and effectively drill the well. The use of RDF is not uncommon for formations susceptible to drilling induced damage but, to our knowledge, none had previously been developed for use in Cuba.

Amistad-2 Production Well

Preparations for the drilling of Amistad-2 are on schedule and civil construction is expected to be completed in April (see Figure 4 and Figure 5).

The well design incorporates all lessons learned to date to maximise the well's flow potential.

Amistad-2 is to be drilled from the new Pad 4 located about 800 metres in a southerly direction from Pad 1 along an existing 2D seismic line.

Figure 4 - Relocation of power lines completed

Figure 5 - Compaction and levels testing at Pad 4

The well trajectory has been selected to maximally intersect the Unit 1B pay interval (including numerous interpreted fracture sets) about 200 metres up dip of where it was intercepted by the successful Alameda-2 (referred to as Amistad-1 in Figure 6, below).

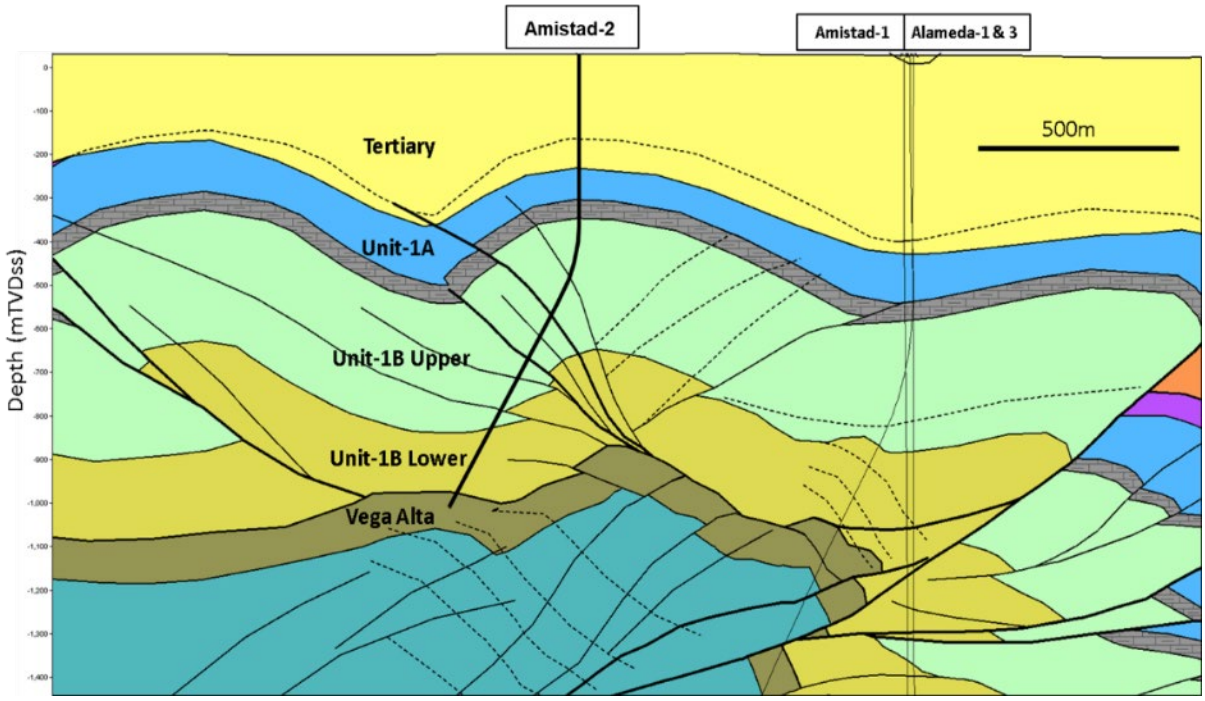

Figure 6 – Well trajectory of Amistad-2 up dip of Alameda-2 (referred to here as Amistad-1)

Once Pad 4 and its access roads are completed the civil contractor will immediately continue with the development of Pad 9 and its access roads in preparation for the drilling of the contingent second production well in this program, Amistad-3.

For and on Behalf of the Board of Directors:

Mr Andrew Purcell
Executive Chairman

Ends -

For further information please contact

Mr Chris Thompson
Chief Operating Officer
+61 2 83 23 66 00

APPENDIX A

DISCLOSURES UNDER ASX LISTING RULE 5

ALAMEDA-2: UNIT 1B	
LR 5.30 (a)	Alameda-2 appraisal well, conventional oil.
LR 5.30 (b)	Block 9 PSC, onshore Cuba about 140 km east of the capital, Havana.
LR 5.30 (c)	Melbana Energy holds a 30% interest and operatorship.
LR 5.30 (d)	N/A
LR 5.30 (e)	Fractured limestone.
LR 5.30 (f)	A total of 196 metres of perforations were open between 691 metres and 993 metres MD.
LR 5.30 (g)	The well had an initial cleanup flow over a total period of 14 days which included shut-in periods, static gradient surveys and a MPLT survey with static and flowing passes conducted over 3 days. Following installation of a PCP, further cleanup flows were conducted over a total of 10 days, including shut-in periods, with pumping at different speeds to investigate an optimal pump speed. The well was shut-in for 12 hours before being re-opened for a 12-hour flow test at a fixed pump speed.
LR 5.30 (h)	A total of 5,030 Barrels of 19-degree API oil were recovered over the duration of clean-up flows and the test period.
LR 5.30 (i)	No formation water was recovered.
LR 5.30 (j)	The choke size was varied throughout the cleanup flow from 12/64” to 110/64”. During the initial cleanup period, the well flowed naturally and recovered 216 Barrels of spent acid and completion fluid and 1,894 Barrels of oil. Whilst surging the well through a 110/64” choke to recover completion brine, a peak flow rate of 4,167 BPD of total fluid was recorded. Whilst running the MPLT survey, the well was flowed at an average rate of 260 BOPD through a 32/64” choke for a period of 21 hours. The survey confirmed that a pump was required to lift the heavy completion brine. A PCP was run to lift the heavy brine and additional acid pumped. During the pumping cleanup period, a total of 323 Barrels of completion fluid were recovered. After cleanup, the well was tested on a fixed pump speed for 12 hours with an average rate of 488 BOPD and 7 BPD of completion brine.
LR 5.30 (k)	The peak flow rate of 4,167 BPD of total fluid was recorded over a 15 minute period at a flowing tubing pressure of 56 PSI. The average well test flow rate of 488 BOPD was recorded over 12 hours at a flowing tubing pressure of 7 PSI.
LR 5.30 (l)	N/A
LR 5.30 (m)	During the cleanup flow, the presence of CO_2 (a byproduct of the dissolution of the Carbonate formation by the hydrochloric acid injected into the well) was noted. No other non-hydrocarbon gasses were recorded during testing.
LR 5.30 (n)	N/A

Table 1 Glossary

Term	Meaning
API	A standard developed by the American Petroleum Institute to determine how heavy or light an oil is compared to water
Barrel	One barrel of oil; 1 barrel = 35 imperial gallons (approx.) or 159 litres (approx.); 7.5 Barrels = 1 tonne (approximately, depending on the oil density); 6.29 Barrels = 1 cubic metre
BPD	Barrels per day
BOPD	Barrels of oil per day
Carbonate	Class of sedimentary rocks which mainly contains calcite, aragonite and dolomite
CT	Computed tomography constructs various sequences of scans to generate cross sectional images
MD	Measured depth
MPLT	A suite of logging tools that measure various properties of downhole fluids (temperature, pressure etc.)
PCP	A progressing cavity pump, also known as a screw pump, transfers fluid by displacement
PSI	Pounds per square inch – an Imperial unit of pressure measurement