



INVICTUS  
ENERGY LIMITED

# Hydrocarbon gas recovered and evaluation program forward plan

20 November 2023

## HIGHLIGHTS

- Hydrocarbon gas recovered from Pebbly Arkose downhole sample
- Wireline log interpretation identifies multiple hydrocarbon bearing intervals in Upper and Lower Angwa reservoir sands
- Upper Angwa initial fluid sample clean-up shows moveable gas and liquid hydrocarbons flowing through onboard compositional fluid analyser (CFA)
- Vertical sidetrack required to complete wireline and fluid sampling program in Upper and Lower Angwa targets
- Company funded to complete the Mukuyu-2 sidetrack operations
- Mukuyu-2 to be preserved for future well test post sidetrack
- Shareholder webinar briefing to discuss preliminary results and forward plan

Invictus Energy Limited ("Invictus" or "the Company") is pleased to provide an update of drilling the Mukuyu-2 well at its 80% owned and operated Cabora Bassa Project in Zimbabwe.

### Comments from Managing Director Scott Macmillan:

*"Further evaluation results continues to reaffirm the presence of moveable hydrocarbons at Mukuyu-2, evidenced by the recovery of natural gas from the Pebbly Arkose formation and further wireline logging data interpretations obtained from the Upper and Lower Angwa reservoirs.*

*"Due to compounding sampling challenges, borehole conditions and well control measures the Company, in conjunction with our service providers, have determined a simple vertical sidetrack will provide the strongest opportunity to achieve our remaining Upper and Lower Angwa evaluation objectives.*

*"The Company is currently funded to conduct and evaluate the planned sidetrack operations, with the completion allowing the well to be suspended for future flow testing.*

*I thank our shareholders for their patience as we conduct the sidetrack well and finalise the evaluation program, I invite you to attend today's webinar briefing to discuss the initial results and forward plan."*

#### ABOUT INVICTUS ENERGY

Invictus Energy Ltd is an independent oil and gas exploration company focused on high impact energy resources in sub-Saharan Africa. Our asset portfolio consists of a highly prospective 360,000 hectares within the Cabora Bassa Basin in Zimbabwe. SG 4571 and EPOs 1848/49 contain the Mukuyu and multiple Basin Margin prospects

#### BOARD & MANAGEMENT

<b>John Bentley</b> Non-Executive Chairman	<b>Joe Mutizwa</b> Non-Executive & Deputy Chairman	<b>Scott Macmillan</b> Managing Director	<b>Robin Sutherland</b> Non-Executive Director
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**Gabriel Chiappini**  
Non-Executive Director  
& Company Secretary

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**Gas recovery and wireline data provides confirmation of moveable hydrocarbons**

Since the previous update, the exploration team has successfully recovered natural gas (predominantly methane and trace heavier hydrocarbons) to surface from the Pebbly Arkose formation (refer to Figure 1 and Table 1 below) and continued pipe conveyed logging operations due to challenging borehole conditions.

Additionally, wireline logging data from gamma ray, density-neutron and resistivity has identified multiple hydrocarbon bearing intervals in the Upper and Lower Angwa reservoir sands, subsequently reaffirming the moveable hydrocarbons observed during initial fluid sample clean-up which showed gas and liquid hydrocarbons flowing through the onboard compositional fluid analyser (CFA).

Prior to the fluid sampling in the Pebbly Arkose formation, analysis of the wireline logs interpreted the presence of residual gas (low gas saturation below the net pay cutoff). The formation was targeted to acquire a water sample to assist the calibration of resistivity data and calculation of gas saturation in the below Upper and Lower Angwa formations.

The recovery of natural gas to surface from a primarily water bearing interval in the Pebbly Arkose provides confirmation of the presence of hydrocarbons coupled with the wireline log interpretation of hydrocarbon bearing reservoirs in the Upper and Lower Angwa formations and most importantly signifies a potential discovery in the Mukuyu field (as per Society of Petroleum Engineers Petroleum Resource Management 2018 definition section 2.1.1.).



Figure 1 - Hydrocarbon gas recovered to surface from Pebbly Arkose downhole sample at depth of 2197.3mMD subsequently analysed through the gas chromatograph

Component	Composition
C1	96.577%
C2	2.880%
C3	0.452%
iC4	0.015%
nC4	0.045%
iC5	0.015%
nC5	0.015%
CO2	0.000%
Total	100.000%

Table 1 - Pebbly Arkose recovered gas composition recovered from 2197.3mMD

## Subsequent evaluation of the Upper and Lower Angwa

Higher than anticipated pressure in the gas leg in the Lower Angwa beneath 3,400mMD where formation pressures exceed 5,000 psi which required an increase in the mud weight to maintain control of the well and preserve well barriers whilst drilling.

Connection gases were observed during the drilling of this part of the hole section to Total Depth at 3,718mMD together with high levels of trip gas resulted in the implementation of well control measures through raising of the mud weight to ensure the safety of the drilling and logging operations and maintain well integrity.

The raising of the mud weight has subsequently led to high overbalance conditions in the shallower intervals of this hole section which has resulted in fluid losses and formation invasion by the drilling fluid which is evidenced by the high pump out volumes required to obtain fluid sample cleanup to obtain representative reservoir fluid samples. High amounts of overpull are required to free the drill string and wireline tools from several points along the wellbore resulting in tool damage, together with holdups and obstructions in the wellbore is typically indicative of hole instability/breakdown.

Subsequent attempts to complete the fluid sampling program on pipe conveyed logging in the Upper and Lower Angwa reservoirs and the remaining data acquisition program have been hampered by tool failures. This is primarily related to the conditions, borehole deterioration and compounded by the duration this hole section has been exposed since drilling of this interval commenced.

Due to the limited availability of replacement fluid sampling tools and risk of successfully completing the fluid sampling and remaining data acquisition program in the current borehole, the Company has carefully considered all options to achieve our objectives for the Mukuyu-2 well.

A thorough assessment in conjunction with our service providers was conducted and determined that plugging back the existing 8 ½ inch wellbore section and conducting a simple vertical sidetrack from the 9 ⅝ inch shoe (at approximately 1,966mMD) would provide the Company the strongest opportunity of acquiring valid fluid samples from the well.

## Forward plan

The Exalo Rig 202 is preparing to plug back the existing 8 ½" wellbore section and commence re-drilling the 8 ½" hole section with more optimal parameters to approximately 3,400mMD above where the overpressure zone in the Lower Angwa commences.

The Mukuyu-2 vertical sidetrack (see Figure 2 below) will be more conducive for conventional wireline logging operations including the fluid sampling to be conducted in the Upper Angwa and part of the Lower Angwa reservoirs, providing favourable parameters for a more efficient and economic sidetrack operation in comparison to the Mukuyu-1 sidetrack well.

The completion of the sidetrack will also allow for the well to be suspended for future flow testing

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through running the 7-inch liner over this interval and retain the ability to drill, evaluate and test the remaining portion of the Lower Angwa in 6-inch hole in future operations.

Following the conclusion of the drilling the 8 ½ inch hole section, the well will be logged including wireline formation testing and final results provided.

The Company anticipates the remaining activities to conduct the sidetrack and wireline logging to take approximately 21-28 days depending on drilling and logging conditions and is currently funded to complete these activities.

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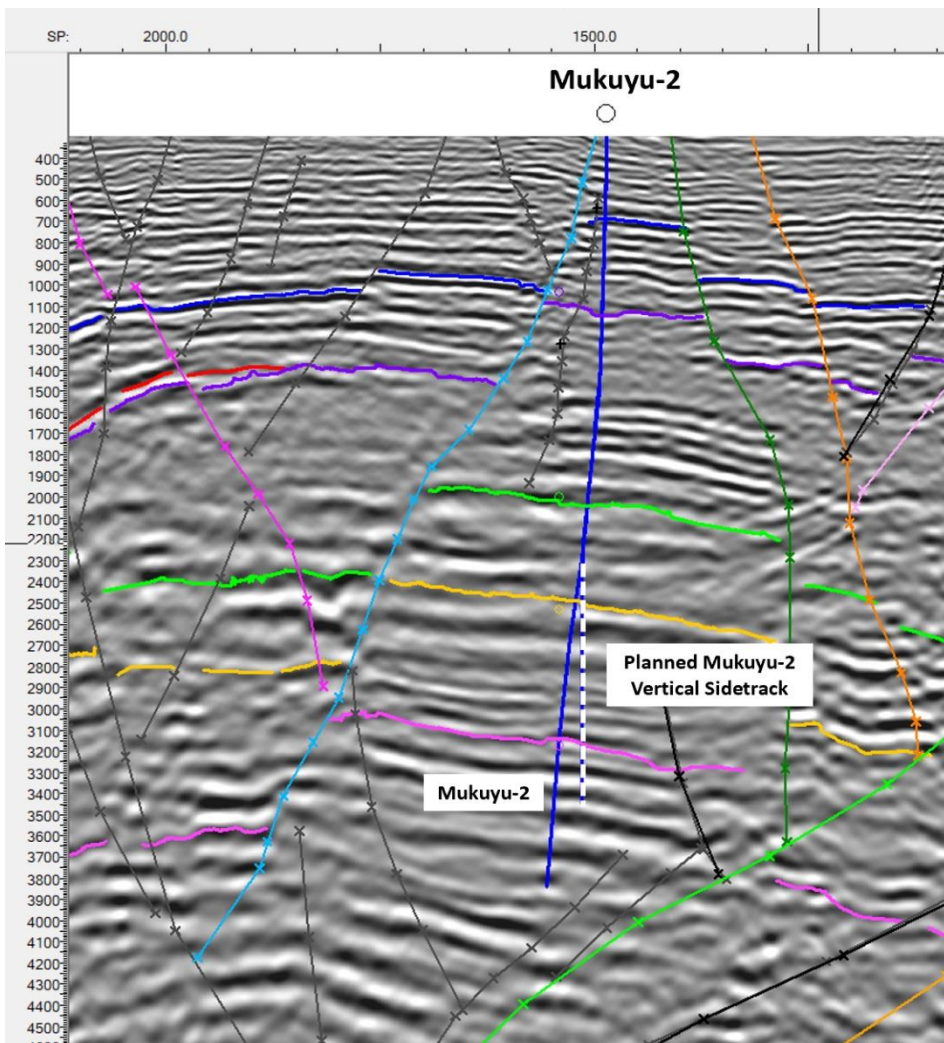


Figure 2 – Planned Mukuyu-2 vertical sidetrack

**Shareholder Webinar Details**

A shareholder briefing will be conducted at 11:00 AEDT / 08:00 WST to discuss the results of the Mukuyu-2 well to date and the forward operations.



Details of the webinar are as follows:

**Time:** Monday 20 November 2023 11:00 AEDT / 08:00 WST

**Topic:** Mukuyu-2 Hydrocarbon Gas Recovery and Forward Operational Plan

**Registration:** [https://us02web.zoom.us/webinar/register/WN\\_CQAGwxI-RWSluLyll-pNqQ](https://us02web.zoom.us/webinar/register/WN_CQAGwxI-RWSluLyll-pNqQ)

After registering, you will receive a confirmation email containing information about joining the webinar.



Figure 3 - Blowdown of Pebbly Arkose fluid sample where natural gas was recovered from a depth of 2197.3mMD

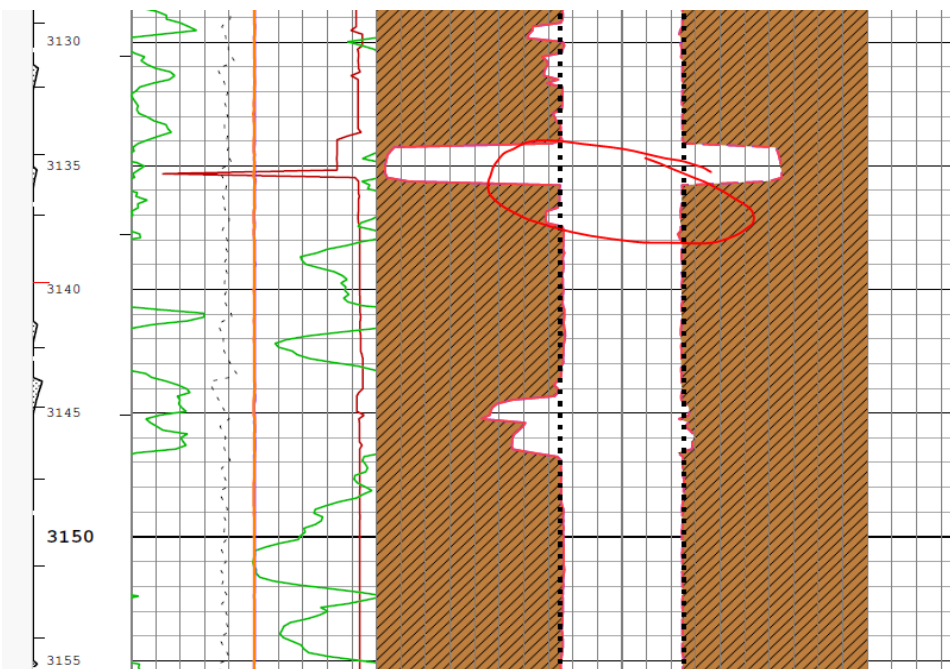


Figure 1 - Example of borehole washout causing wireline tool holdup and damage

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Approved for release by the Board

## Questions and enquiries

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### About Invictus Energy Ltd (ASX: IVZ)

*Invictus Energy Ltd is an independent upstream oil and gas company listed on the Australian Securities Exchange (ASX: IVZ). The Company is headquartered in Perth, Australia and has offices in Harare, Zimbabwe. Invictus is opening one of the last untested large frontier rift basins in onshore Africa – the Cabora Bassa Basin – in northern Zimbabwe through a high impact exploration programme.*

*Invictus Energy is committed to operating in a safe, ethical and responsible manner, respecting the environment, our staff, contractors and the communities in which we work.*

**#Cautionary Statement:** *The estimated quantities of petroleum that may be potentially recovered by the application of a future development project relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal and evaluation are required to determine the existence of a significant quantity of potentially movable hydrocarbons. Prospective Resource assessments in this release were estimated using probabilistic methods in accordance with SPE-PRMS standards.*

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