

MATERIAL INCREASE IN CARPENTARIA-2H IP30

- **Carpentaria-2H (“C-2H”) has achieved a new average flow rate over 30 days (“IP30”) of 2.81 mmscf per day, equating to a normalized flow rate of over 3 mmscf per day per 1,000m of horizontal section. This represents an increase of approximately 17% over the initial IP30 rates announced in September 2022 despite partial reservoir depletion following the initial 51-day flow testing program. The current flow rate is 2.3 mmscf per day.**
- This excellent result, achieved with a highly experimental and therefore unoptimized stimulation design, validates the soaking strategy that Empire has employed and will be incorporated into Empire’s development planning process which is well underway.
- North American reservoir engineering firm Subsurface Dynamics, Inc. (“SSD”) has analysed the flow testing performance of C-2H. SSD’s analysis indicates that development wells with 3km laterals in the C-2H area could generate total estimated ultimate recovery (“EUR”) of **6.2 BCF gas per well on a P50 basis and 8.1 BCF gas on a P10 basis**. Most of this gas would be produced in the first 3 – 5 years, consistent with US shale basins, which would drive rapid recovery of invested capital.
- Based on Empire’s existing drilling and stimulation cost performance, the operations team estimates that development wells with 3km lateral sections and 60 fracture stimulation stages in the pilot phase can be drilled, fracture stimulated and completed for production for approximately \$20 million per well (and likely below \$15 million per well in larger scale development scenarios given the economies of scale that would be generated).
- **This indicates that Empire could achieve upstream development costs of approximately A\$2.00 to A\$3.00 per mscf in future development scenarios.**
- Flow testing is ongoing, and Empire’s management, subsurface and operations teams are progressing the work required to take a proposal to the Board for a Final Investment Decision for the pilot project later this year (“Pilot FID”).
- Current cash balance is \$15.7 million with approximately \$3.5 million remaining to be paid in relation to the 2022 drilling and stimulation programs. The \$15 million credit facility is available but undrawn providing further liquidity. The final Beetaloo Cooperative Drilling Program progress payment of ~\$7.6m is expected to be received soon. This leaves Empire well capitalized to carry out the preparatory work for the Pilot FID.

Comments from Managing Director Alex Underwood:

"The upgraded IP30 rate that Empire has achieved at C-2H, the company's first horizontal appraisal well within an experimental and therefore unoptimized stimulation design, demonstrates that EP187 has the potential for commercial outcomes in development scenarios.

Our planning process for the pilot project is continuing, and we look forward to sharing results with shareholders as key milestones towards a Final Investment Decision are achieved.

Drilling results to date have proven that Empire's Beetaloo Sub-basin shales have world class scale and quality. Empire has proven that we can drill and fracture stimulate long horizontal wells in our acreage in a cost effective manner.

As observed in the US shale gas industry, improvements in gas rates and total gas recovery are achievable through established learning curves. Empire is seeing such gains in EP187 despite only drilling a small number of wells.

In an increasingly carbon constrained world, underscored by recent Federal legislative announcements in relation to the Safeguard Mechanism, Empire believes that it is well placed given the very low in reservoir CO2 content of less than 1% in our tenements."

CARPENTARIA-2H UPDATE

As previously announced, Empire's first horizontal well in EP187, C-2H, was reopened on Friday 24th February after ~5 months of shut in for soaking. Following opening the well has continued to produce at a higher sustained gas rate than the 51-day extended production test ("EPT") period prior to shut in. This confirms the strategy of shutting in and soaking is effective for improving gas flow rates, and this is likely to improve total gas recovery over the life of the well.

After recommencing the extended production test ("EPT"), the IP30 at C-2H was 2.81 mmscf per day and was flowing at 2.3 mmscf per day at the end of the 30 day period. No well intervention or optimisation has been undertaken during the testing period, as the gas rate is sufficient to lift wellbore fluids in 4 ½" casing.

Type curves generated by SSD from the early and unoptimized C-2H production indicates development wells can exceed commercial thresholds. Empire expects improved recovery and rates in future wells as it adapts drilling and completion lessons learnt from executed work programs.

C-2H well testing is continuing.



Gas flare at Carpentaria-2H

This ASX release has been authorised by the Board of Directors

For queries about this release, please contact:

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DISCLOSURES UNDER ASX LISTING RULE 5

Carpentaria-2H	
LR 5.30 (a)	Shale gas well
LR 5.30 (b)	EP187 tenement, within the Beetaloo Sub-basin, Northern Territory
LR 5.30 (c)	Empire holds a 100% working interest and operatorship
LR 5.30 (d)	Not applicable
LR 5.30 (e)	Horizontal section has been drilled in the B Shale of the Velkerri Formation
LR 5.30 (f)	The depths of the 927 metre (3,041 feet) fracture stimulated horizontal section tested range from 1,585 to 1,594 metres (5,200 feet to 5,232 feet) True Vertical Depth (TVD) referenced to Rotary Table (6.9 metres (22.6 feet) above ground level).
LR 5.30 (g)	Extended production testing following fracture stimulation. <i>Phase-1 (pre-soak)</i> 51 days duration (to 6am ACST on Thursday 29th September 2022). <i>Phase-2 (post-soak)</i> 31 days (30 days steady) duration (as of 17:15 pm ACST on Sunday on 27th March 2023).
LR 5.30 (h)	Gas recovery - mole %: Methane 83.17, Ethane 11.95, Propane 1.47, Butane 0.3, Pentane and Higher 0.06
LR 5.30 (i)	<i>Phase-1 (pre-soak)</i> 31,880 barrels of flowback fluid (including coiled tubing cleanout volume) recovered, representing 38% of total injected water. During the 51 days of measured gas flow, the rate of fluid flowback declined from ~1,500 bbl. / day to ~80 bbl. / day. <i>Phase-2 (post soak)</i> 2,763 barrels of incremental flowback fluid has been recovered to date, representing 3.33% of total injected water. During the 30 days of steady gas flow, the rate of fluid flowback declined from ~110 bbl. /day to ~55 bbl. /day
LR 5.30 (j)	Stimulated horizontal section of 927 metres (3,041 feet) <i>Phase-1 (pre-soak)</i> Choke size 64/64" to 68/64". Gas flow averaged 2.2 mmcf / day over the first 51 days (day 51 rate 1.82 mmcf per day). <i>Phase-2 (post soak)</i> Choke incrementally opened with an average of 58/64". Gas flow averaged 2.81 mmcf / day over the 30 days steady flow, final rate on day 30 was 2.3 mmcf / day.
LR 5.30 (k)	<i>Phase-1 (pre-soak)</i> Wellhead pressure range from 1,275 psi - 117 psi (Upper pressure relates to first flow through separator). Test duration 51 days (to 6am ACST on Thursday 29th September 2022). <i>Phase-2 (post soak)</i> Wellhead pressure range 1771 psi – 131 psi 31 days (30 days steady) duration (as of 17:15 pm ACST on Sunday on 27th March 2023).
LR 5.30 (l)	21 stages along an effective stimulated horizontal length of 927 metres (3,041 feet). 8 Crosslink, 7 Slickwater, 4 hybrid and 2 high viscosity friction reducer (HVFR) stages executed with a total 6.3 million lbs of proppant (sand) placed at an average proppant concentration of 2,066 lbs per foot
LR 5.30 (m)	Mole %: Helium 0.16%, Carbon Dioxide 0.88% and other Inert volume 2.01% Field measurements of Carbon Dioxide have been below measurable threshold of 0.2%
LR 5.30 (n)	Not applicable