



Carpentaria Pops the Cork and Serves Up a Gourmet of Gas in the Beetaloo

Alex Underwood shows the Hon Nicole Manison MLA, Deputy Chief Minister and Resources Minister, NT Government, around the Carpentaria-2H well.

DALE GRANGER

IN the culinary world it's said that the proof of the pudding is in the eating and it's no different in the resource realm, where Empire Energy has been able to declare a gourmet of gas from record-breaking flow rates showing minimal declines at the company's Carpentaria-2H well in the Beetaloo Sub-basin in the Northern Territory.

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The Sydney explorer's 100% owned and operated EP187 tenement was on the

culsp of being declared commercially viable after Carpentaria-2H had delivered what is believed to be the highest sustained gas flow rate of any well drilled in the Beetaloo basin to date.

Gas flowed at an average rate of 2.6mmscf/day for the first 13 days and a normalised rate of 2.8mmscf/day per day per 1000m horizontal section before it was shut-in and recommenced production at 11mmscf/day and a stabilised rate of 2.5mmscf/day over a seven-day period.

At the time of going to press Empire was preparing to continue testing with Carpentaria-3H off the same well pad and Managing Director Alex Underwood was delighted with an outcome he described as "historic" – one that had surpassed even their own optimistic assessments.

"When we look at goals in the program and cut that up into stages, at Carpentaria the big boxes that we are ticking relate to learning how to fracture stimulate shales in the Beetaloo basin. That same learning curve has been extended at Carpentaria-2H where one of the key goals of the program aside from flow rates was developing the technical knowledge on how to fracture stimulate the rocks," Underwood said.

"There are a number of variables that come into play here, including frac stim fluid, types of sand used and perforation strategies, in tandem with pump rates.

"Looking at the execution, we are very happy with the results. We tried four different fluid systems with varying viscosity of fluids. Across the Beetaloo Basin others have tried slick water fluids but faced screen out. At Carpentaria-2H we planned four slickwater stages,

starting with low sand concentration and gradually increasing concentration with each stage. We were thrilled that this was successful so we placed a total of seven slickwater stages without screening out. We also successfully placed another 14 stages comprising crosslinked gel, HVFR (high viscosity friction reducer) and hybrid.

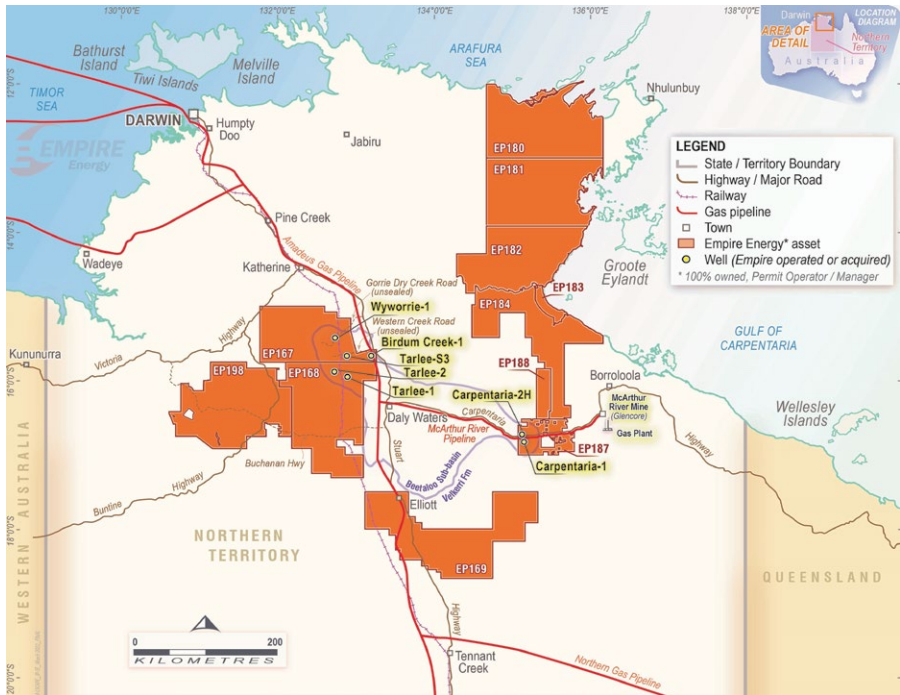
"In the USA they generally moved to slickwater, a much more cost-effective system, over time. For us to achieve this was a big milestone."

Flow rates synonymous with a champagne celebration and very low production declines meant Empire's first horizontal well in the Beetaloo has expanded the window of opportunity on the path to production. Nevertheless, the company remains cognisant of the need to stay grounded as the process unfurls in a systematic manner.

"Admittedly it's still early days, but economical flow rates now come into the discussion. A UBS report related to Origin Energy's operations in the Beetaloo predicted that 3mmscf/day over 1000m of horizontal section may be the economic benchmark and we are knocking right on the door of that rate with our first horizontal well delivering flow rates that are very encouraging. Being in a shallower part of the basin, we are fortunate to have significantly lower costs than in deeper parts of the basin which reduces our breakeven flow rate. Another metric that was very exciting to us was that we were able to flow back water and gas through 4.5-inch casing without the need to install production tubing, enabling us to keep costs down. So, we have some



Alex Underwood greets NT businessman Leslie Rice of KD Machinery Hire on site at Carpentaria-2H.



Empire Energy holds the largest acreage position in the Beetaloo Sub-basin and MacArthur basin.

macro tailwinds behind us at a time when LNG prices delivered into Japan are trading at US\$58 / mmbtu, prices I've never seen in my life," Underwood said.

In reality, Australia can barely wait for Empire to deliver its wares to market from a treasure chest of the company's 3C resource estimated at 1,292 Bcf in the Beetaloo. In early August the Australian Competition and Consumer Commission warned that businesses could be forced to close and households left short of gas next year if the big three Gladstone exporters did not divert some of their uncontracted LNG to the domestic market.

The gas inquiry 2017-2025 interim report red flagged a potential east coast gas market facing a gas shortfall of up to 56 petajoules in 2023.

The Australian Treasurer, Jim Chalmers, described conditions in the east coast gas market as "alarming" and said in a statement: "The findings are deeply concerning and I urge gas producers to do the right thing by Australians. It's critical that our domestic gas supply is secure and competitively priced, particularly when households and businesses are under extreme pressure."

"Gas prices are beyond what we as a company can control. What we do know is that gas has a critical role to play in the global energy mix and will continue to do so for a long time. We have an enormous gas resource under our feet and we are demonstrating that we can extract it in an economic manner as part of our ongoing mission statement to crack the code to develop our resources as efficiently as we can," Underwood said.

As Empire ponders chicken and egg type permutations on the road to production, Underwood said the company was cognisant of the need to reward shareholders in the short-term while still nurturing longer-term growth ambitions.

With the largest acreage position in the McArthur Basin and Beetaloo Sub-basin and gas that comes with the added bonus of low CO₂ content of 0.5% to

1%, Empire's ace in the hand is the close proximity of Carpentaria-2H to the Darwin-Alice Springs gas pipeline. This opens up potential to deliver gas to Australia's East Coast and backfill options to the Santos and Inpex-operated LNG plants in Darwin. The company has signed a MOU with APA, owner of the Amadeus Gas Pipeline, to investigate supply options to Darwin as well as potential development of a new Beetaloo pipeline opening up markets to Mount Isa as well as the export trains on Curtis Island.

QGC Story Inspires

Underwood revealed that he had drawn inspiration from Queensland Gas' meteoric rise as a visionary junior that soared to billion dollar value off the launchpad of pioneering coal seam gas initiatives that led to the three LNG export plants at Gladstone.

"For the moment we are demonstrating to our investors and future potential JV partners that we can extract gas from our very large resource in an economically attractive manner. With each passing day we move further along the learning curve. This journey has been well travelled in America as US shale basins were developed. All of these basins became economic at the end of the day, but in each one the industry had to apply different techniques to different rocks," Underwood said.

On his travels to the United States, the Empire CEO said he had been surprised

by how much interest and awareness there is of the Beetaloo.

"During the pandemic we couldn't travel, but I was in the US this year and very encouraged to discover the industry professionals are keeping up to date on developments in the Beetaloo with a lot of interest in what we are doing in Australia. We believe that it is all coming together, but ultimately it has always been the job of smaller companies to run the risk subscribing to the vision of creating billion-dollar value down the track," Underwood said.

Discussions around the Empire boardroom table are much focussed on strategy. Mindful that time is money which won't sit indefinitely in the impatient realm of the markets, Empire also knows that shareholders, much like Shakespeare's Shylock, ultimately want their pound of flesh.

"The big picture is the critical role we can play improving supply to the east coast to help bring down prices and boost the economy. But that's the longer-term strategy juxtaposed with the short-term reality that every dollar raised by issuing additional shares to realise this objective represents a dilution of value to shareholders. In that respect we are focussed on the desire to get into production as early as possible and a pipeline located five kilometres from Carpentaria offers the potential for a 25Tj a day opportunity that would be meaningful in respect of generating revenue while we transition

into the second stage of larger scale development," Underwood said.

"On reflection, this is what QGC were able to achieve, being successfully able to generate revenue and reinvesting cash as they built up an ever-increasing contingent resource and reserve base."

Australia has largely been able to watch from relative safety as Russia's war in the Ukraine wreaked havoc on world energy markets with British and European electricity consumers savaged by soaring prices. Underwood says it's critical that Australia heeds the lessons from this fallout.

"Before the invasion of the Ukraine the talk was about the world energy mix and rapidly rising renewable energy technologies. But now we are confronting intermittent energy supply issues that brought home the acknowledgement that gas will play a vital role stabilising power for decades to come.

"Hydrocarbons also have other critical uses for things such as medicine and food production. Recent global events have rekindled the realisation that we are fortunate to have gas resources in this country. There is an awareness on both sides of politics that we need sensible policy framework to unlock new sources of supply as this involves long years of planning. Well ahead of any production you need policy certainty as a bedrock, because it takes high levels of technical expertise and capital risk to bring frontier basins into production." ▀



The Carpentaria-2H well



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