

29th October 2021

ASX Market Announcements ASX Limited 20 Bridge Street Sydney NSW 2000

# **September 2021 Quarterly Activities Report**

### **Highlights**

- Ongoing analysis of newly acquired 3D Seismic Data covering the Judith Gas Field
- New Seismic Data provides a significant increase in data quality and resolution
- Positive results from AVO Gas Indicator;
  - Strong AVO responses through Judith Gas Sands and underlying Longtom reservoirs extending over at least 500m of vertical relief within the Judith Structure
  - o Conformity of AVO responses to structural closure at all target levels
  - o Further de-risks the planned Judith-2 drilling
- Increase in resource evaluation confidence justifies expenditure on new seismic data
- Combination of the new Seismic Data and strong AVO response has upgraded the Judith-2 Well to Appraisal Well status in the Judith Gas Sands with upside exploration potential in the underlying Longtom reservoir intervals
- New Seismic Data unearths additional Exploration Play in Kipper and Golden Beach Sands and possible up-dip extension of the Kipper Gas Field into Vic/P47
- Preparation underway to commence applications for Judith-2 Well Regulatory Drilling Approvals

#### 1. Ongoing Interpretation and Analysis of New Seismic Data

During the September Quarter the Emperor Energy Technical Team has continued with assessment of the recently acquired 3D seismic data covering the Judith Gas Field and Greater Judith Structure.

The seismic data is available to Emperor Energy via a commercial agreement with global seismic company CGG who acquired the data during 2020 as part of a multi-client 3D Seismic Survey that covered much of the Offshore Gippsland Basin including the Judith Gas Field.

Seismic acquisition was carried out using state-of-the-art equipment and techniques incorporating 7000 m long acquisition cables to generate the highest quality reservoir resolution seen so far in the Gippsland Basin.

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The license provides Emperor Energy with access to Survey Data over and around the Judith Gas Field comprising 37km<sup>2</sup> within Exploration Permit Vic/P47 as well as further areas outside of Vic/P47 to the west, south and east that are required to fully define the Greater Judith structure.

The cost of the license to Emperor Energy is a total of AUD \$732,180.90 and is payable via staged payments across a period of 12 months commencing in April 2021. These favourable payment terms have been factored into EMP's cashflow and capital commitment schedule.

#### 2. Improved Structural Interpretation of Judith using New Seismic Data

The quality of the Seismic data has allowed Emperor Energy's geologists and geophysicists to build an updated and more accurate structural interpretation of the Judith Gas Field. There is a dramatic improvement in data resolution across the entire gas field except for relatively small areas at the top of the structure close to the major Rosedale Fault where the combination of steep dips and fault shadow effects still leaves these high areas with some reduction in seismic resolution. Judith Gas Sands can now be correlated to Kipper-1 where gas is apparent in these reservoir sands on logs and where gas with minor oil was recovered from an RFT.

The new data provides a significant step forward in the level of detail available to define the Judith Gas Field and contributes significantly to the de-risking of the proposed Judith-2 Well. Emperor Energy considers the quality of the data and output from its' analysis fully justifies the seismic license expenditure to access the data.

Figure 1 shows how the Judith Gas Field fits into a regional perspective including the previously producing Longtom Gas Field and currently producing Kipper Gas Field.

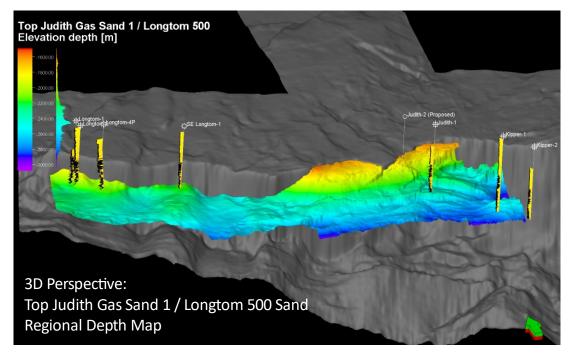


Figure 1: Regional Depth Map providing perspective on the structural relationship between the Judith, Longtom and Kipper Gas fields.

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#### 3. Judith on Trend with Longtom and SE Longtom Gas Fields

Judith is on-trend and directly analogous to the Longtom and SE Longtom gas fields. The Longtom-3 well flowed at 75 MMSCFD. The Longtom Gas Field was online from 2009 to 2015.

All three accumulations comprise over-pressured gas in Emperor Group sandstone reservoirs contained within steeply dipping and fault-bound closures sealed against the regional Rosedale Fault.

Greater Judith lies 2-3 km from both Kipper and Tuna producing gas fields operated by ExxonMobil. The Judith-1 gas discovery was drilled in 1989 by Shell in approximately 70 m water depth:

- Judith-1 intersected ~160 m net interbedded over-pressured gas sands in a ~540 m gross column
- The target gas sands showed 13-15% average porosity.
- Similar quality sands were successfully tested with gas recovered in the nearby Longtom, Kipper-1, East Pilchard-1 and Scallop-1 wells.
- The Judith-1 gas discovery is on the SE flank of the overall closure with up to 750 m of up-dip potential gas reservoir.
- Several producing gas sands in the Longtom gas field are interpreted as being present below the total depth of the Judith-1 well.

The 100% Emperor Energy owned Judith Gas Field is located within the Vic/P47 Permit in the offshore Gippsland Basin, Victoria. On 11 July 2019 Emperor Energy advised that an Independent Resource Statement had been completed for the Judith Gas Field within the 100% Emperor Energy owned Vic/P47 Exploration Permit located in the offshore Gippsland Basin, Victoria. The Resource Statement Highlighted:

- 2C Contingent Gas Resource of 150 Bcf (3D-GEO, July 2019, Determined by Probabilistic Method)
- P50 Unrisked Prospective Gas Resource of 1.226 Tcf (3D-GEO, July 2019)

#### 4. AVO Analysis of Judith Gas Sands 2 and 3

Emperor Energy has also progressed the next phase of technical analysis of the seismic data using Amplitude Versus Offset (AVO) analysis and modelling that provides a Direct Hydrocarbon Indicator (DHI) in these reservoir sands across the Greater Judith Structure. The AVO analysis compares the seismic amplitude response that has been recorded from geophones located comparatively close to seismic signal source with data from those geophones located at distance from the seismic signal source.

AVO allows a comparison in the variations of fluid properties present in the porous space of the target gas sands. These variations have then been calibrated against data from the gas bearing zones of the existing Judith-1 Well (Drilled by Shell in 1989) and from equivalent gas bearing sands in the nearby Kipper-1 gas discovery drilled and developed as a producing gas field by Exxon Mobil.

AVO analysis provides a calculated geophysical interpretation of where the sand formations are gas charged and not water filled and provides the best available prediction for gas other than drilling.

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Results of the AVO analysis have been very encouraging. Figures 3 and 4 below show the outcome of AVO analysis for the Judith Gas Sand 2 and Judith Gas Sand 3. These gas sands have net pay thicknesses of 45m and 85m respectively with a non-gas bearing interval between them of 72m. In both cases the AVO analysis shows strong AVO Gas Indication (brightening to orange) across the Judith Structure both within and outside the VicP/47 Permit area, including at Kipper-1 to the southeast where gas was recovered during drilling.

Faults that have been interpreted from the seismic data can been seen as darker areas in the AVO response map providing an indication of the extent of the accuracy of data interpretation and the AVO response.

The extent of the strong AVO response indicates interpreted gas extending over more than 500m of vertical relief through the permit area with the gas response extending up-dip in the Judith Gas Field from the Judith-1 Well. This adds considerable support to the Prospective Resource estimates previously published for the Judith Gas Field.

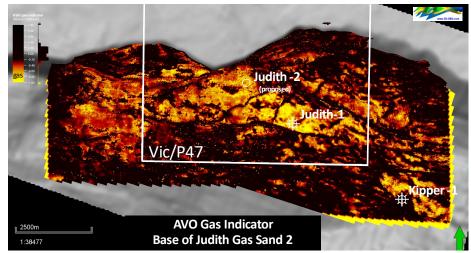


Figure 3: AVO Gas Indicator in the Judith Gas Sand 2 containing a 45m Net Pay Interval. Areas brightening to orange show a strong AVO gas indicator. (Emperor Energy VicP/47 Permit Boundary shown as white line)

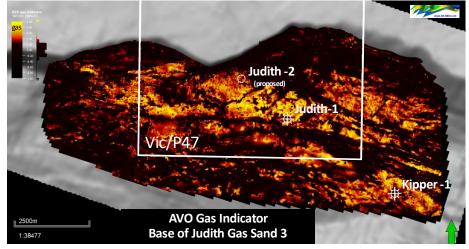


Figure 4: AVO Gas Indicator in the Judith Gas Sand 3 containing an 85m Net Pay Interval and located 72m beneath the Judith Gas Sand 2. Areas Brightening to orange show a strong gas indicator.

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## 5. Additional Play identified in Kipper and Golden Beach Sands up-dip from the Kipper Gas Field

During the recent analysis a good correlation of Kipper and Judith Gas Sands between the Judith-1 and Kipper-1 Wells was achieved for the first time due to the increase in seismic data quality. The seismic and AVO analysis has unearthed a potential additional Exploration Play in Kipper and Golden Beach Sands and possible up-dip extension of the producing Kipper Gas Field into the south and east of Vic/P47.

Analysis of this new play is continuing with further interpretation and definition potentially leading to an upgrade of the overall Judith Prospective Resource in what are considered high permeability formations.

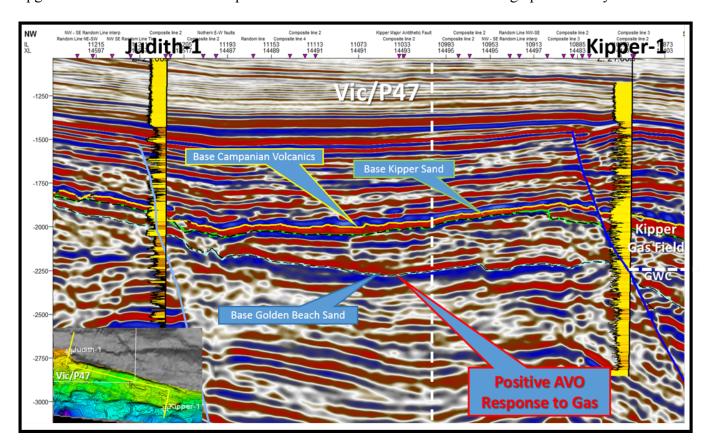


Figure 5: Seismic Cross Section from the Kipper-1 Well to Judith-1 Well showing positive AVO gas response in the Golden Beach Formation.

### 6. Commencement of Approval Process for Drilling of the Judith-2 Well

In conjunction with Global Well Management Consultants AGR, Emperor Energy is now progressing to commence the next stages of the Judith-2 well design, procurement and preparation for the required regulatory and environmental approvals to enable drilling.

The environmental approvals planning process is the longest lead item for drilling the Judith-2 Well, and this work will be initiated shortly to allow a minimum of 12 months prior to commencement of operations.

Emperor Energy and AGR are close to agreeing final terms for the work and are progressing towards contractual engagement and commencement of the process.

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Commencement of the approval process also provides an increased likelihood of Emperor Energy being able to contract a rig of opportunity and consequently minimise both mobilisation and demobilisation costs.

Emperor Energy continues to have discussions with potential Farm In Partners.

#### 7. Finance

At the end of the quarter, 30th September, the Company's cash balance was \$705,156.

The company paid \$38,115 to directors and management for the quarter ended 30<sup>th</sup> September 2021 for administration and exploration expenses.

A summary of the cash flow for the quarter are attached in the Appendix 5B.

### 8. Tenement holding summary

Below is a list of the tenements held by Emperor Energy Limited as of 30<sup>th</sup> September 2021:

Petroleum Tenement	Location	Beneficial Percentage held	
Vic/P47	Victoria	100% / Operator	
Backreef Area	Western Australia	100% / Operator	

We thank shareholders and our team for their ongoing support and welcome any questions they may have.

This announcement has been authorised for release to the market by the Board of Directors of Emperor Energy Limited.

Yours faithfully

**Carl Dumbrell** 

**Company Secretary** 

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### **Corporate Directory**

**Board of Directors**Company Secretary

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Top 20 Shareholders – ASX: EMP

Position	Holder Name	Holding	%
1	Citicorp Nominees Pty Limited	21,410,214	11.46%
2	BNP Paribas Nominees Pty Ltd	12,315,438	6.59%
3	Carl Dumbrell & Controlled Holdings	10,109,936	5.41%
4	Slade Technologies Pty Ltd	7,000,000	3.75%
5	Phil McNamara & Controlled Holdings	6,190,396	3.31%
6	Nigel Harvey & Controlled Holdings	5,406,645	2.89%
7	Gotha Street Capital Pty Ltd	5,268,137	2.82%
8	Scintilla Strategic Investments Limited	5,000,000	2.68%
9	HSBC Custody Nominees (Australia) Limited	4,701,336	2.52%
10	Pharoth San & Kaden San	3,866,912	2.07%
11	Hix Corp Pty Ltd	3,530,000	1.89%
12	Zen88 Pty Limited	3,350,000	1.79%
13	Sama Zaraah Pty Ltd	3,257,000	1.74%
14	Daniel J Peters	3,064,197	1.64%
15	LittleJohn Embrey Engineering Pty Ltd	3,000,000	1.61%
16	Benjamin Gordon Price	2,389,797	1.28%
17	Craig Graeme Chapman	2,333,333	1.25%
18	Malcolm Ross King	2,084,756	1.12%
19	Eric Frank Frescher	1,863,045	1.00%
20	Buduci Fond Pty Ltd	1,748,746	0.94%

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