



22nd April 2024

ASX Market Announcements
ASX Limited
20 Bridge Street
Sydney NSW 2000

Results of Judith-1 Well Gas Production Simulation Modelling

Judith Gas Field - Vic/P47 Exploration Permit

Highlights

- **Results of recently completed Gas Production Simulation Modelling indicate the Judith-1 Well can reach a production rate of 100 Million standard cubic feet of gas per day (100MMscf/d).**
- **Modelling results also indicate that if constrained to 60MMscf/day the Judith-1 Well would flow for 8.25 years before commencing a decline in flow rate.**
- **As a point of reference for comparisons of scale, 60mmscf/day is similar to the nameplate capacity of the Orbost Gas Plant owned by Cooper Energy, located 40km to the north of the Judith-1 Well.**
- **The production modelling of the Judith-1 Well was completed using input data from the 2023 revised petrophysical analysis conducted by respected industry expert Steve Adams.**
- **Modelling has been specifically limited to the 198 BCF 2C Contingent Gas Resource assessed within the Judith Fault Block surrounding the Judith-1 Gas Discovery Well. Prospective Resources in adjacent fault blocks have not been used in this production simulation modelling.**

Emperor Energy is pleased to announce the results of the recently completed gas production simulation modelling of the Judith-1 Well that has been conducted by independent consulting group 3D-GEO Pty Ltd.

3D-GEO was engaged by Emperor Energy Limited to update the previous Static and Dynamic Modelling of the Greater Judith Prospect, while utilising the results of the 2023 revised petrophysical analysis by respected industry expert Steve Adams at The Petrophysicist Limited. (EMP: ASX Announcements 7th September 2023 and 10th January 2024).

The gas production simulation modelling was limited strictly to the 198 BCF of discovered 2C Contingent Gas Resource within the Judith Fault Block immediately surrounding the Judith-1 Gas Discovery Well that was drilled by Shell in 1989 and not flow tested.

The results of the gas production simulation indicate the well can flow at a rate of 100 Million Standard Cubic Feet of Gas Per Day (100MMscf/day) for a period of 4.25 years before declining below a bottom hole pressure (BHP) of 1,000 psia.

The modelling also showed that the well could flow for 8.25 years at a rate of 60MMscf/day which, for the purposes of comparing scale, is similar to the nameplate capacity of the currently producing Orbost Gas Plant owned and operated by Cooper Energy and located 40km to the north of the Judith Gas Field.



The modelling also indicates the Judith-1 Well would sustain a flow rate of 80MMscf/d for 6 years. Emperor Energy has previously completed a Pre-FEED study for proposed development of an 80MMscf/d pipeline to a proposed new gas processing plant at the Orbost gas plant site. This study was completed in 2020 when the Orbost gas plant was owned by APA Group.

Malcom King who consults to Emperor Energy in a Project and Business Development Role and was the Shell geologist on the rig in 1989 when the Judith-1 well was drilled has recently stated:

“This new Petrophysical interpretation carried out by Steve Adams and the subsequent flow simulation modelling go a long way towards validating what we saw when drilling the Judith-1 well. We were looking to prove a ‘mega-extension’ of the Kipper Gas Field in the next fault block updip from Kipper and each time we experienced a drilling break from shales to sandstones within the range of target formations there were very strong gas shows irrespective of the heavily overweighted drilling fluid in use to suppress the well. We were sure on the drilling rig that we had found something really big. Subsequent interpretation of the wireline logging data was however deemed inconclusive at the time by Shell’s petrophysicists in Aberdeen, Scotland and the well was plugged and abandoned without being flow tested. Now, Steve’s expertise and methodology for re-evaluating older wells has turned this around.”

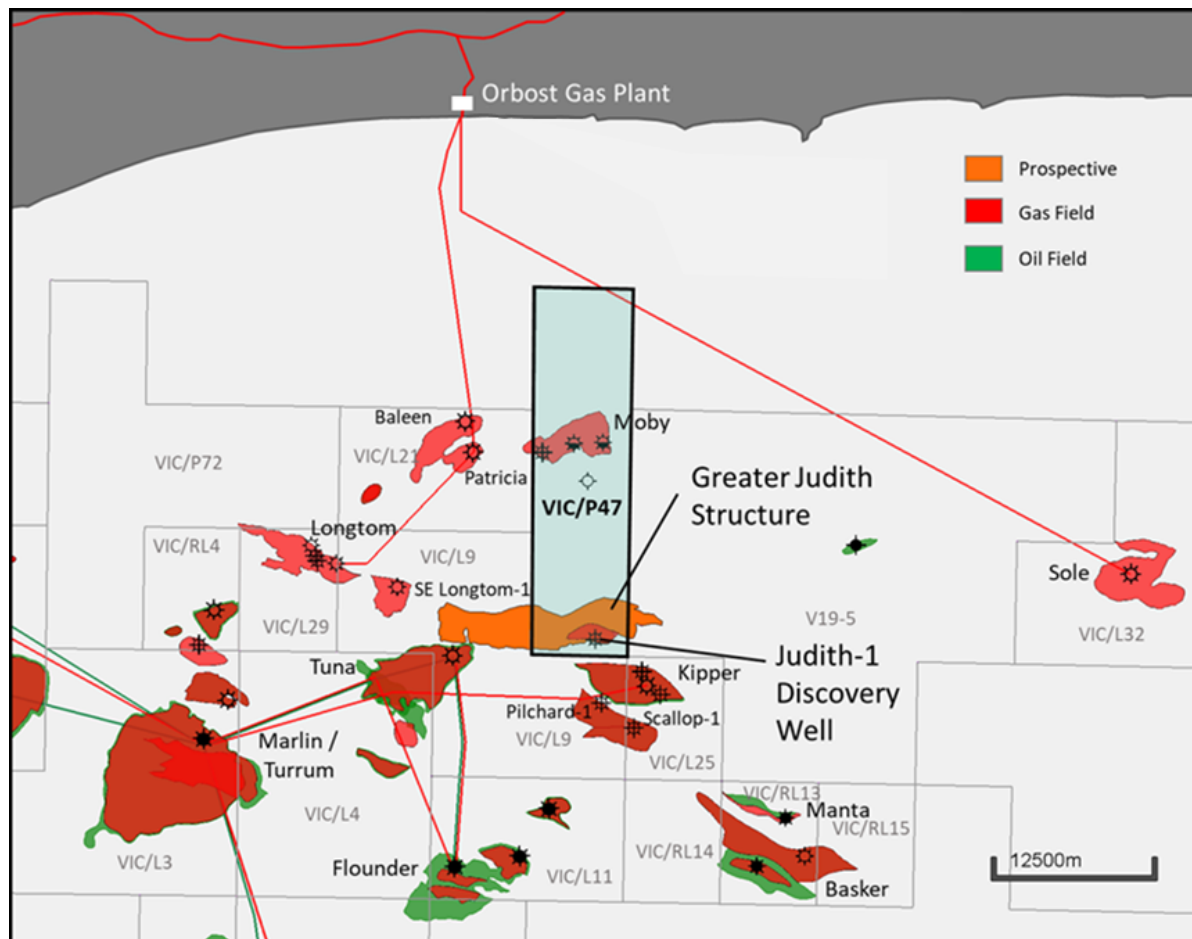


Figure 1: Location of 100% Emperor Energy owned Vic/P47 Exploration Permit containing the Judith Gas Field located in the offshore Gippsland Basin (Bass Strait).

The production modelling simulation has been limited to the 198 BCF 2C Contingent Resource immediately around the Judith-1 Well and shown highlighted in Red.

The Greater Judith Structure containing a much larger Prospective Resource is highlighted in orange.

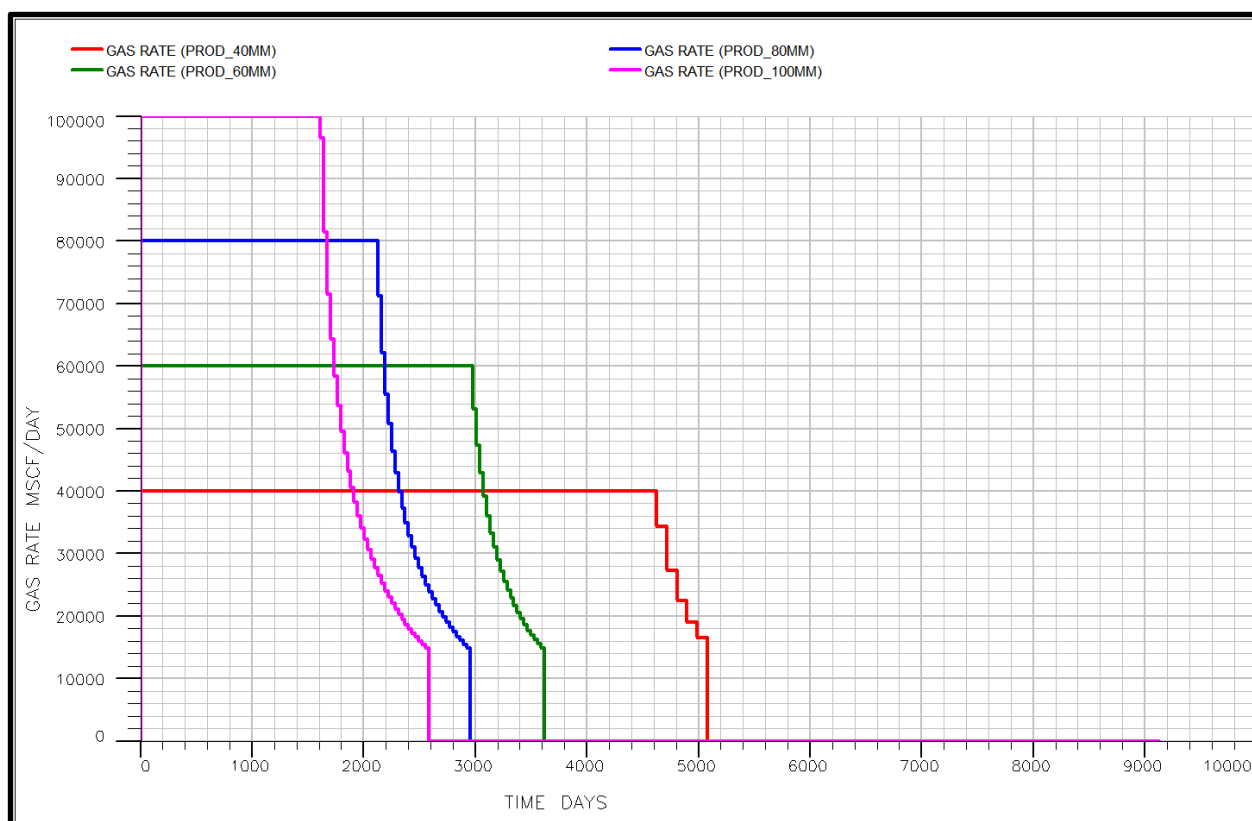


Figure 2: Gas production rates from the gas production simulation modelling of the Judith-1 Well showing production cases of 40, 60, 80 and 100 MMscf/d (off-peak decline occurs below 1,000 psia Bottom Hole Pressure and well shut down at 15MMscf/d).

The key outcomes of the September 2023 Petrophysical Evaluation of the Judith-1 Well by Steve Adams are summarized in **Table 1** below. The study provided an independent analysis and interpretation supporting the presence of mobile gas in the well along with an order of magnitude increase in calculated permeabilities. This evaluation have been used in the gas production simulation modelling conducted.

Zone	Depth	Interpretation	Net Thickness	Porosity %	Av. Permeability mD	Av. Gas Saturation %
Gas Sand 1	2370m to 2441m	Mobile Gas	40.5	14.1	12.3	52.2
Gas Sand 2	2489m to 2543m	Mobile Gas	38.8	15.0	24.2	63.8
Gas Sand 3	2626m to 2720m	Mobile Gas	63.1	13.6	5.2	61.1
Gas Sand 4	2778m to 2839m	Mobile Gas	47.1	12.6	1.6	56.4

Table 1: Key outcomes from the 2023 Judith-1 Petrophysics Evaluation by Steve Adams

Biography – Steve Adams

Steve has a MSc in Physics with First Class Honours. He has been a Petrophysicist since 1987. Following training and an initial 7 years with Shell, he has worked as an independent consultant with clients in Australasia, Asia, Europe, the Middle East and elsewhere. Steve has also worked extensively for Reserves Auditing companies including Gaffney-Cline, RPS and RISC. Steve is a member of the SPWLA and the SPE. Steve has more than 20 papers published and is highly regarded in the Industry as a Technical Expert. Steve is a Specialist in Saturation-Height Modelling. His 2016 book “Saturation-Height Modelling for Reservoir Description” has been well received. Steve has been providing petrophysically-focused training courses since 2001.

Biography - Juan Carlos Maroquin Cabrera (Reservoir Engineer)

Juan Carlos holds an MSc in Petroleum Engineering from Texas A&M University and a BSc in Petroleum Engineering from the Universidad de America in Bogota, Colombia. Juan Carlos has over 35 years' experience in the petroleum sector including BP, 3D-GEO and currently at Ecopetrol. Juan Carlos is a member of the SPE, CPIP and ACIPET.

Emperor Energy is focused on the development of the Judith Gas Project located 40km offshore from the Orbost Gas Plant in the Gippsland Basin, Victoria. The project requires drilling of a successful Judith-2 appraisal well to prove Gas Reserves and subsequently provide economic justification for gas field and processing plant development.

Emperor Energy has de-risked the project through systematic analysis of all available data from the Judith-1 Gas Discovery Well (drilled by Shell in 1989) and by licensing access to new MC3D seismic data that was acquired in 2020 to define a Prospective Resource for the Greater Judith structure, and Contingent Resource around the Judith-1 location.

Competent Persons Statement

Consents

The Resources information in this ASX release is based on, and fairly represents, data and supporting documentation supplied in an Independent Technical Specialist's Report (ITSR) prepared by 3D-GEO Pty Ltd. The preparation of this report has been managed by Mr Keven Asquith who is Chairman and Director of 3D-GEO Pty Ltd.

Mr Asquith holds an Honours BSc. Geological Sciences – University of Western Ontario, Canada, 1978, and a Diploma in Project Management from the University of New England, Australia - 2000. Mr Asquith has over 35 years' experience in the sector and is a long-time member of the American Association of Petroleum Geologists (AAPG).

Mr Asquith is a qualified Petroleum Reserves and Resources Evaluator as defined by ASX listing rules. The Resources information in this ASX announcement was issued with the prior written consent of Mr Asquith in the form and context in which it appears.



3D-GEO Pty Ltd is an independent oil and gas consultancy firm. All the 3D-GEO staff engaged in this assignment are professionally qualified engineers, geoscientists or analysts, each with many years of relevant experience and most have in excess of 25 years of industry experience.

3D-GEO was founded in 2001 to provide geotechnical evaluations to companies associated with the oil and gas industry. 3D-GEO services domestic and international clients with offices in Melbourne and Madrid.

Reserves and resources are reported in accordance with the definitions of reserves, contingent resources and prospective resources and guidelines set out in the Petroleum Resources Management System (PRMS) approved by the Board of the Society of Petroleum Engineers in 2018.

The Independent Technical Specialist's Report (ITSR) has been prepared in accordance with the Code for the Technical Assessment and Valuation of Mineral and Petroleum Assets and Securities for Independent Expert Reports 2005 Edition ("The VALMIN Code") as well as the Australian Securities and Investment Commission (ASIC) Regulatory Guides 111 and 112.

SPE-PRMS Society of Petroleum Engineer's Petroleum Resource Management System - Petroleum resources are the estimated quantities of hydrocarbons naturally occurring on or within the Earth's crust. Resource assessments estimate total quantities in known and yet-to-be discovered accumulations, resources evaluations are focused on those quantities that can potentially be recovered and marketed by commercial projects. A petroleum resources management system provides a consistent approach to estimating petroleum quantities, evaluating development projects, and presenting results within a comprehensive classification framework. PRMS provides guidelines for the evaluation and reporting of petroleum reserves and resources.

Under PRMS "**Reserves**" are those quantities of petroleum which are anticipated to be commercially recoverable from known accumulations from a given date forward. All reserve estimates involve some degree of uncertainty. The uncertainty depends chiefly on the amount of reliable geologic and engineering data available at the time of the estimate and the interpretation of these data. The relative degree of uncertainty may be conveyed by placing reserves into one of two principal classifications, either proved or unproved. Unproved reserves are less certain to be recovered than proved reserves and may be further sub-classified as probable and possible reserves to denote progressively increasing uncertainty in their recoverability.

"**Contingent Resources**" are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations, but the applied project(s) are not yet considered mature enough for commercial development due to one or more contingencies. Contingent Resources may include, for example, projects for which there are currently no viable markets, or where commercial recovery is dependent on technology under development or gaining access to existing infrastructure or where evaluation of the accumulation is insufficient to clearly assess commerciality.

Contingent Resources are further categorized in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by their economic status.

"**Prospective Resources**" are those quantities of petroleum estimated, as of a given date, to be



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potentially recoverable from undiscovered accumulations by application of future development projects. Prospective Resources have both a chance of discovery and a chance of development. Prospective Resources are further subdivided in accordance with the level of certainty associated with recoverable estimates assuming their discovery and development and may be sub-classified based on project maturity.

The estimated quantities of petroleum that may potentially be recovered by the application of future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further exploration appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.

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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