



20 May 2021

ASX Limited  
10<sup>th</sup> Floor, 20 Bridge Street  
Sydney NSW 2000

### COMPANY PRESENTATION

BPH Executive Chairman and Managing Director, David Breeze, is presenting at the Broker Briefing May 2021 Investor Webinar on Thursday 20 May at 12.20pm EST (10.20am WST).

Attached is a copy of the presentation.

David Breeze (Director) authorised the release of this announcement to the market.

**BPH Energy Ltd** ACN 095 912 002

PO Box 317, North Perth, Western Australia 6906

14 View Street, North Perth, Western Australia 6006

admin@bphenergy.com.au www.bphenergy.com.au

T: +61 8 9328 8366 F: +61 8 9328 8733

For personal use only



ADVENT ENERGY LIMITED



# BPH Energy Ltd -Company Presentation on Advent PEP11 – Offshore Sydney Basin and Cortical Dynamics

May 2021



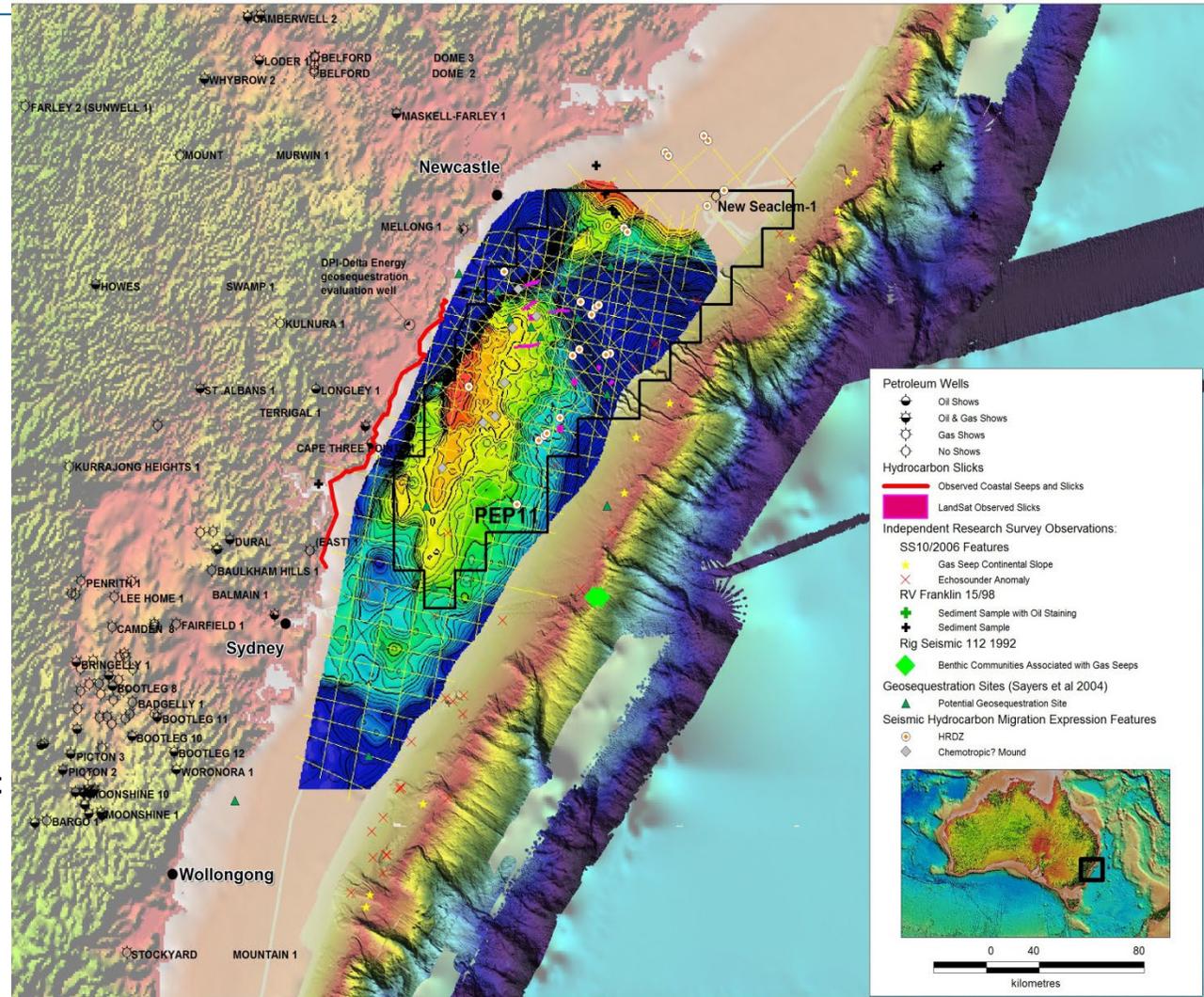
ersonal use only



# PEP11-85% Interest

## PEP11- Offshore Sydney Basin:

- The Sydney Basin is a proven hydrocarbon basin with excellent potential for further discovery of natural gas / significant multi-Tcf natural gas project
- PEP11 covers 4,649 km<sup>2</sup> on the doorstep of Sydney-Newcastle & extensive gas infrastructure (<50km).
- Analogues to major discoveries -the offshore Sydney Basin contains all the elements seen in other producing world class petroleum basins, including Prospective Resources of 5.7 Tcf (P50) in structural targets.
- Current application to NOPTA to enable drilling as next step
- Significant interest in the project is driven by the gas market dynamics Shortfall forecast in gas supply east coast
- Two new gas fired power stations for NSW firming generation
- CCS potential (independently verified)
- Key attributes for Hydrogen role
- Significant potential employment driver



PEP 11 Permit Boundary -Black Outline

# BARM™

A NEW AND DIFFERENT EEG MONITOR

1

BARM™ fundamentally differs from other monitors in that its algorithms are based on the physiological processes that produce the electrical activity of the brain, the EEG

2

A bottom-up approach produces measures that relate to the physiology of each individual patient, providing more interpretable and personalised monitoring of their response to anaesthetic agents

3

Specifically, BARM™ produces two measures, cortical state (CCS) and cortical input (CI), which reflect the effects of both sedative and analgesic agents

4

BARM™ is new 3rd generation technology developed to provide more comprehensive and patient-specific measures of sedation and analgesia

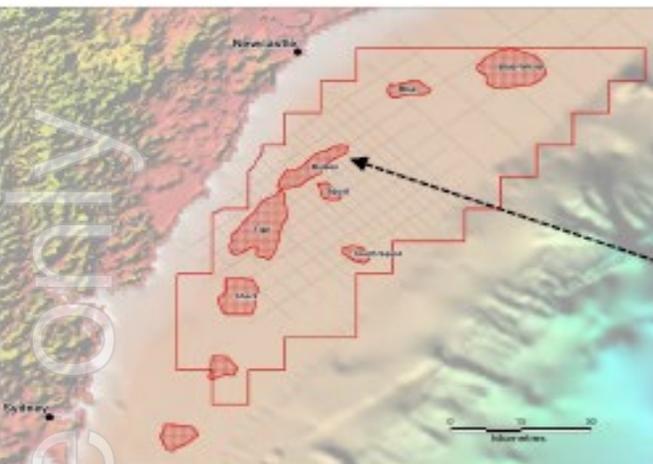
5

BARM™ operates in real time

Cortical  
Dynamics Ltd  
Developer of  
the Brain  
Anaesthesia  
Response  
Monitor BARM™



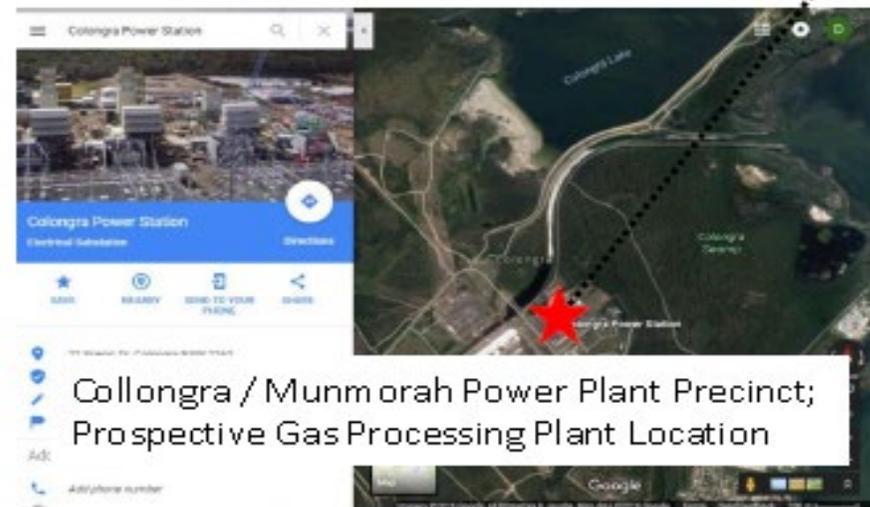
# PEP11 Project



PEP11 Prospects & Leads



Illustrative graphic only – actual development plan may differ



Collongra / Munmorrah Power Plant Precinct;  
Prospective Gas Processing Plant Location



Newcastle Port;  
Prospective Gas Processing Plant Location

Personal use only



# PEP11 Permit History & Progress

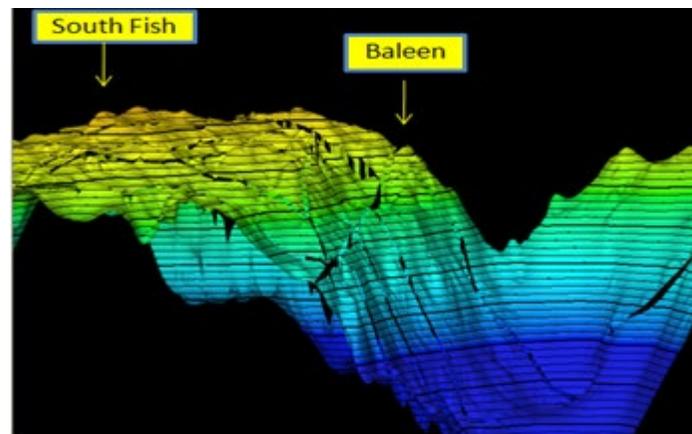
## Historical Ownership of PEP11 Permit

- ▶ During the 1980s, Santos Ltd. shot extensive 2D seismic over PEP11
- ▶ At the time, the prospect was not developed: Gas prices rendered the field uneconomical
- ▶ From 1992, PEP11 was held by small Australian exploration companies without progress being made
- ▶ Santos (1991) identified a total 10 structural leads in the PEP 11 offshore area..."
- ▶ Ampoex (1992) identified the Baleen South Lead as one of their major targets. Unrisked reserves were estimated at 1560 Bcf.



## Progress through involvement of Advent

- ▶ Advent farmed into a 25% interest in 2006 through acquisition of 2004 seismic, and increased interest to 85% following drilling of New Seaclem-1 in 2010
- ▶ Significant geological & geophysical work completed since Advent's farm-in-Fugro Ltd reprocessed 1,460km seismic shot in 2004 & integrated with 2,300km legacy data obtained from Santos
- ▶ Prospective recoverable resource estimates have been independently validated with prospective recoverable resources of 5.7 TCF (P50) in structural targets
- ▶ Reservoir potential sands encountered in Cenozoic and Early Permian sediments. Drilling samples demonstrated the Early Permian sediments to be mature for hydrocarbons.

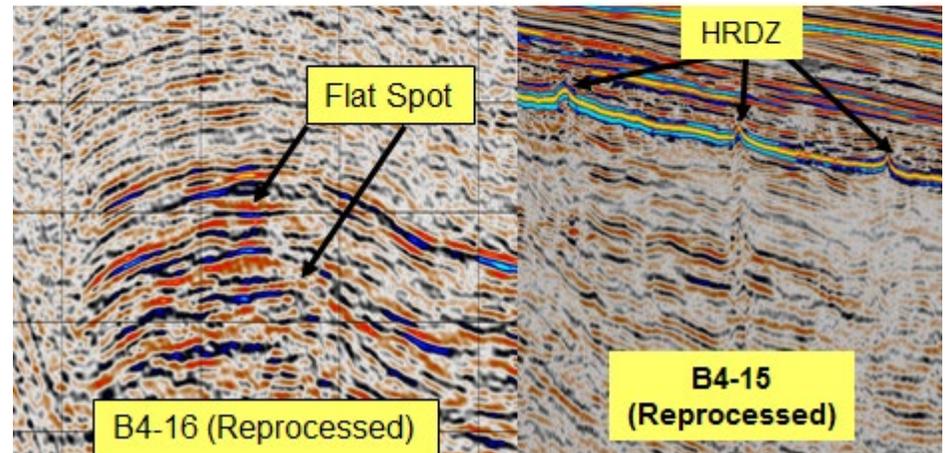
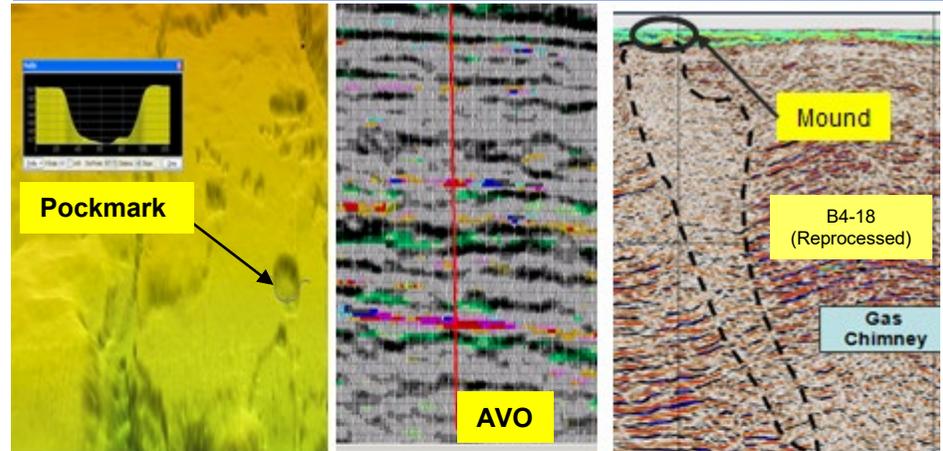




# Significant Hydrocarbon Potential proven by Industry Standards

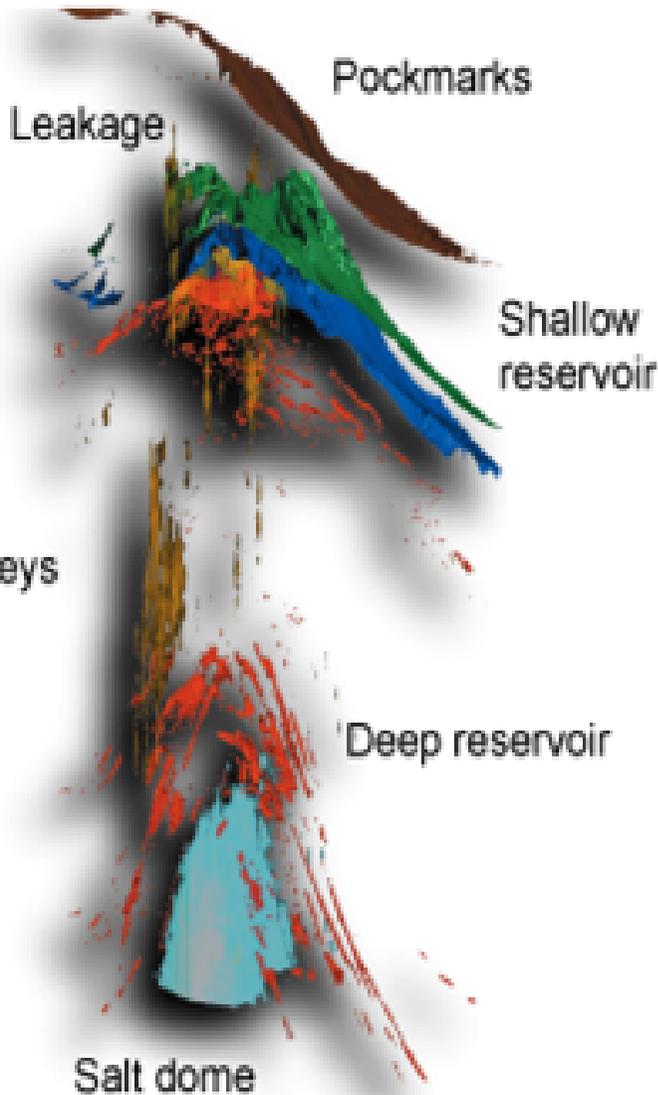
- ▶ The permit's potential is evident in the significant and complimentary hydrocarbon & migration features observed
- ▶ Direct hydrocarbon indicators identified in seismic data
  - high amplitude bright spot reflections
  - attenuation of high frequencies in instantaneous frequency plots
  - bright spot features in Root Mean Squared amplitude plots
- ▶ Gas chimneys, HRDZs, anomalous AVO, reverse polarity events, flat spots are also present
- ▶ Hydrocarbon seepage has been observed and recorded via Landsat across areas of the permit
- ▶ Echosounder seeps and sizeable pockmarks are observed within the permit area and covering the offshore continental slope
- ▶ Repeated Hydrocarbon seep samples show a thermogenic source with liquid components indicated
- ▶ Independent inshore Hydrocarbon Seep Gas analysis shows high gas content

## Features Observed Across Permit





ADVENT ENERGY LIMITED



*Chimneys and pock marks indicating focus areas of fluid flow above the top reservoir*

- “seismic chimneys are visible in 90% of all Mesozoic and Tertiary basins.”
- Gas chimneys have been observed to tie in to features associated with gas seepage like pockmarks and ....shallow gas accumulations and faults
- Recent studies have revealed that chimneys can represent a link to deeper hydrocarbon accumulations
- Active seeps and migrated hydrocarbons are a key indicator of ongoing hydrocarbon generation (Abrams M Hydrocarbon migration and its near surface expression: AAPG Memoir 66)
- The mapping of chimneys has significance in geohazards interpretation
- High concentrations of chimneys are observed in areas where discovery wells and oil and gas fields are present
- Schumacher D “A recent review of more than 850 wildcat wells –all drilled after geochemical surveys finds that 79% of wells drilled in positive anomalies resulted in commercial oil and gas discoveries “(Surface geochemical exploration, D. Schumacher, 2000,)



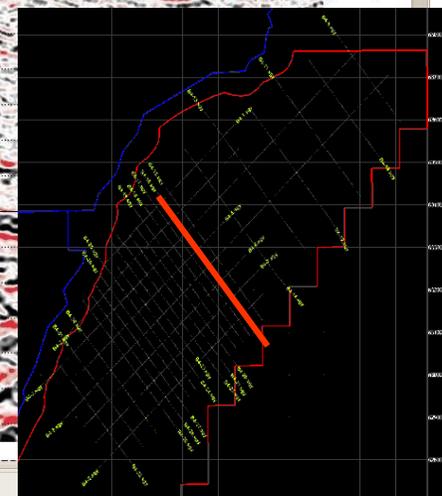
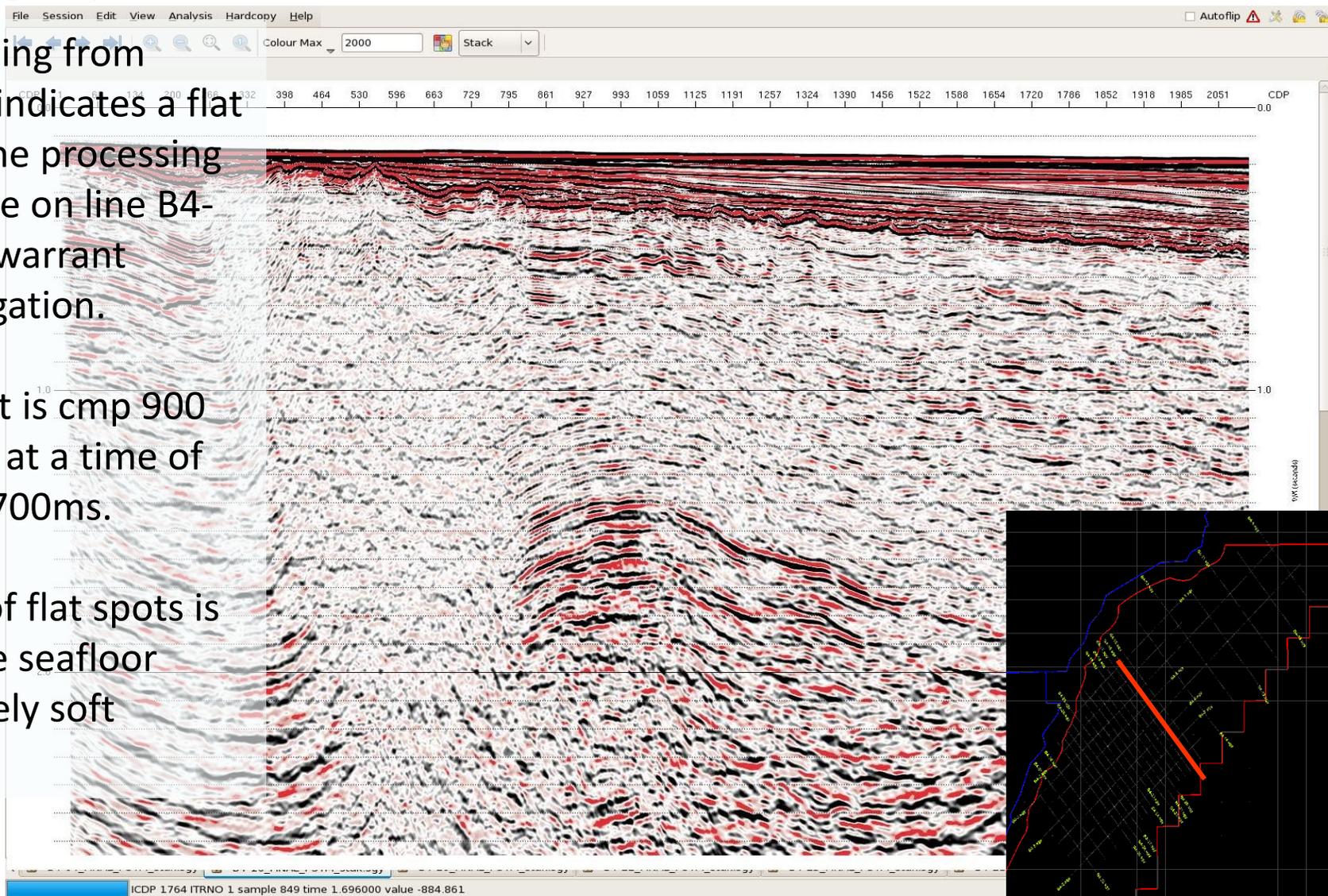


# B4-16 Preliminary Final PSTM (Zoom)

Data reprocessing from phase 2, 2009 indicates a flat spot on the time processing within structure on line B4-16 which may warrant further investigation.

Area of interest is cmp 900 to 1060 (2 km) at a time of 1500ms and 1700ms.

Note polarity of flat spots is opposite to the seafloor indicating a likely soft response.



2011 PEP11 Permit Boundary Shown

# Offshore Sydney Basin – Direct Hydrocarbon Indicators PEP11

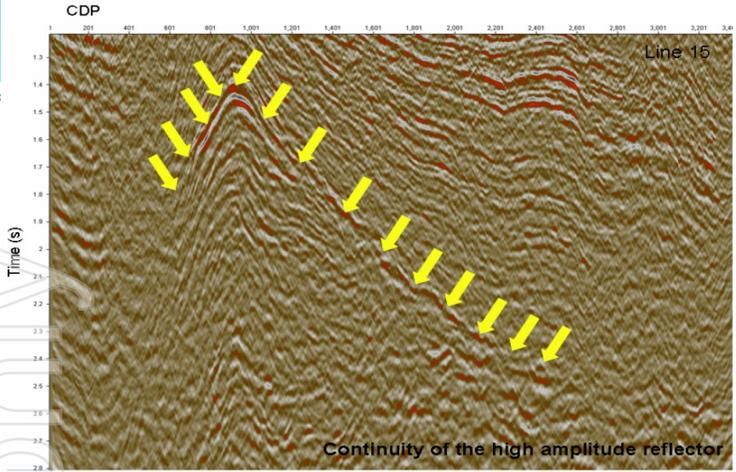


Figure 69: Display of Line B4-15. The continuity of high amplitude reflector has been mapped.

“Strong energy reflections present on seismic section can be associated with major lithologic changes as well as hydrocarbon accumulations.”

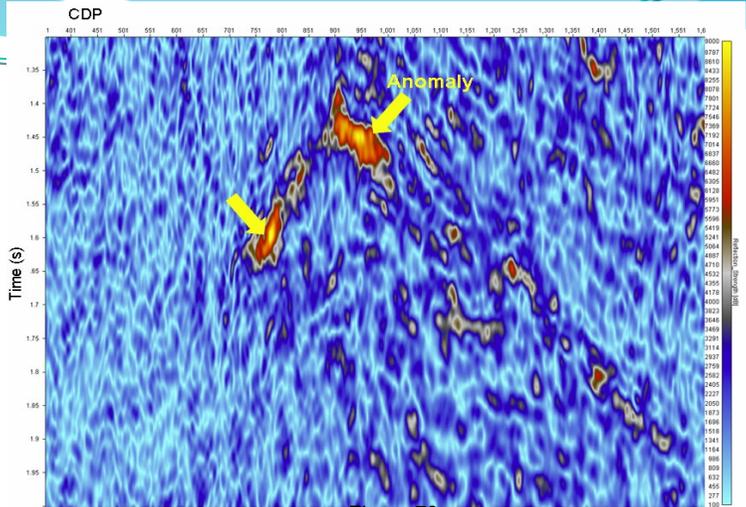


Figure 70: Reflection Strength plot of the high amplitude reflector

“Gas reservoirs, in particular, appear as high amplitude “bright spot” reflections.”

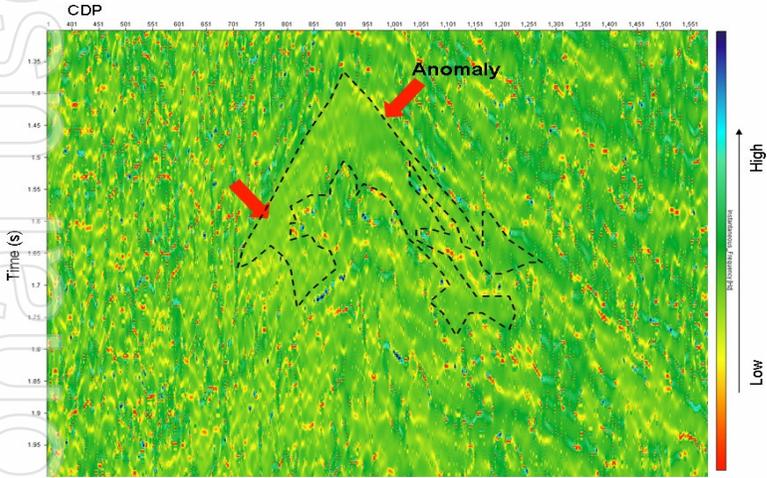


Figure 72: Instantaneous frequency plot for the high amplitude reflector. It is showing low frequency anomaly.

“Instantaneous frequency content is of interest in that high frequencies are attenuated by gas and condensate reservoirs.”

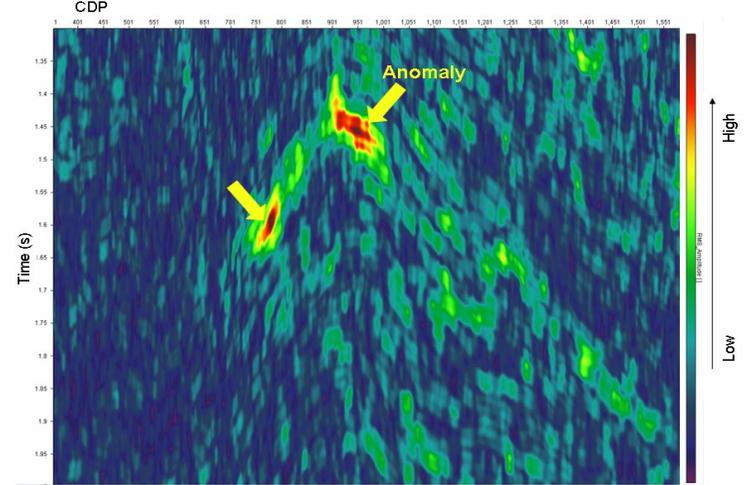
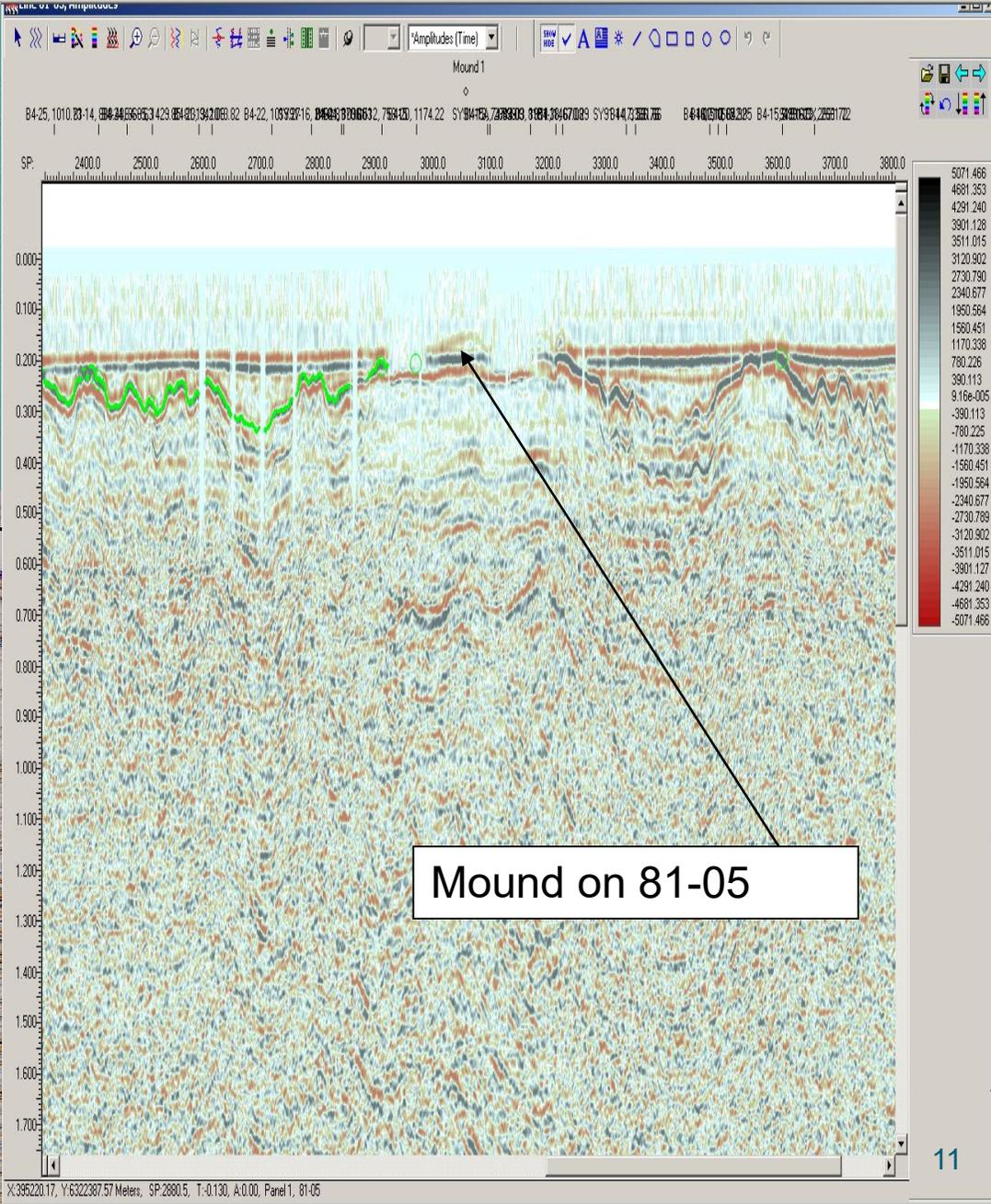
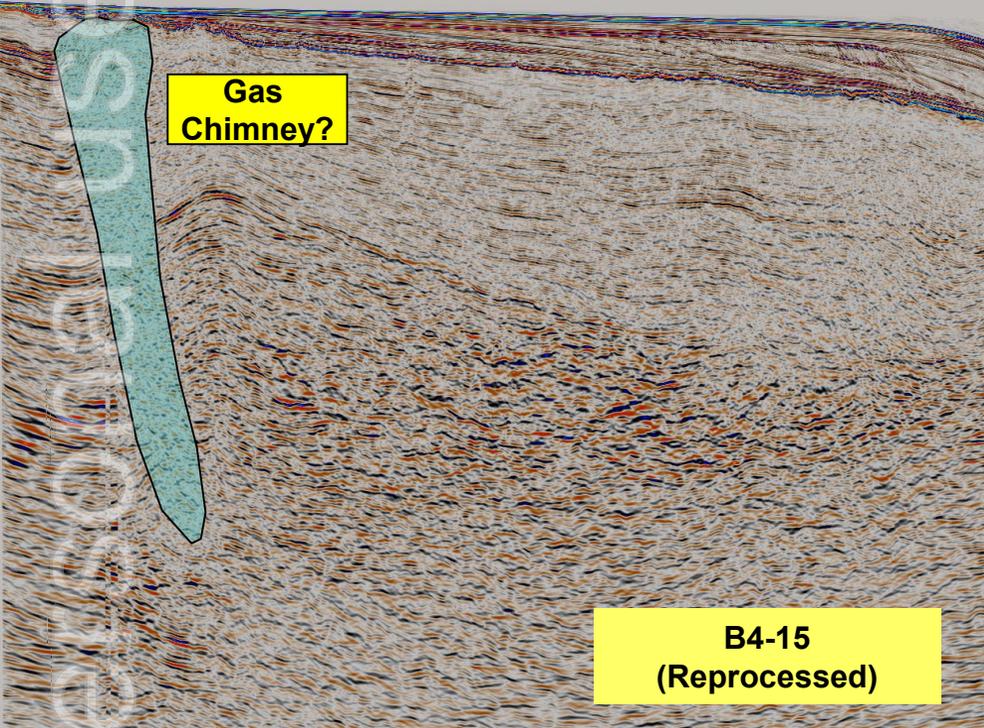
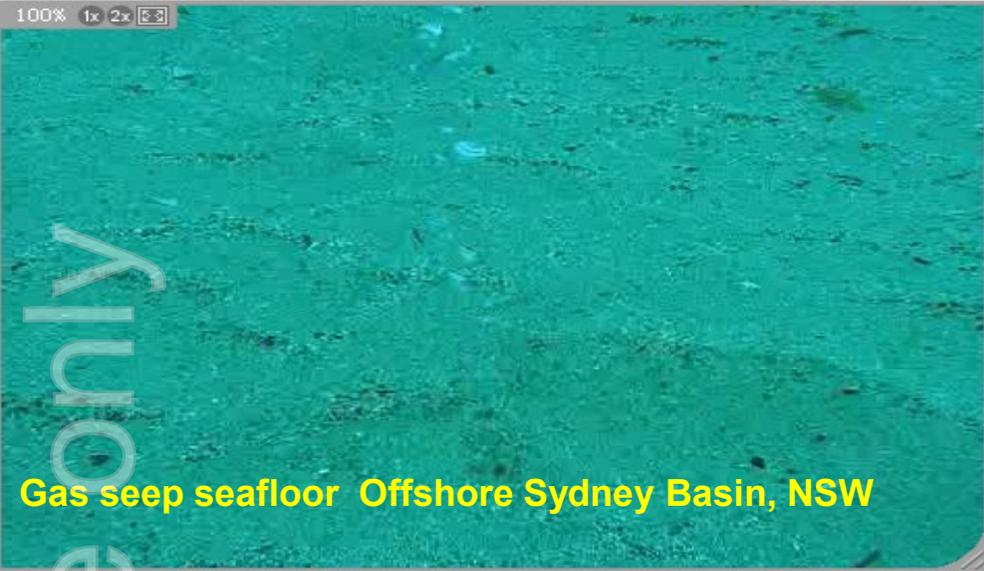


Figure 74: RMS of seismic amplitude over the area of Line B4-15, where high amplitude reflector is mapped.

“The Root Mean Square (RMS) amplitude ... may be used to map direct hydrocarbon indicators in a zone.”

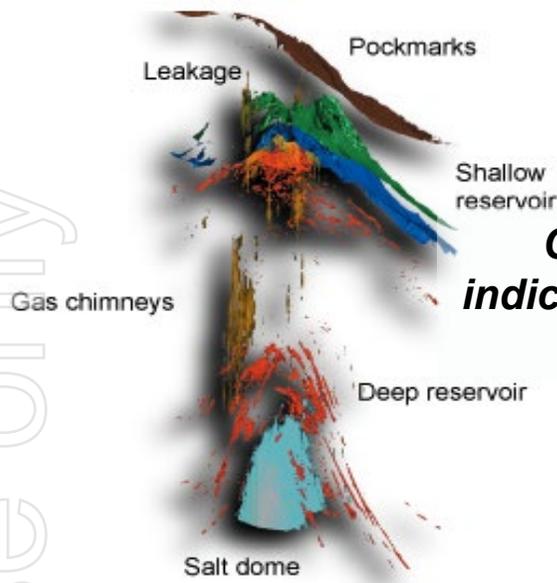
“The RMS of seismic amplitude for the 700ms window have been calculated. This indicates a bright spot like feature, which is a prime indicator for the occurrence of gas.”

# Thermogenic hydrocarbon seepage offshore NSW



## Norway – Gullfaks South Field

Judd and Hovland, 2007. *Seabed Fluid Flow*.



**Chimneys and pock marks indicating focus areas of fluid flow above the top reservoir**

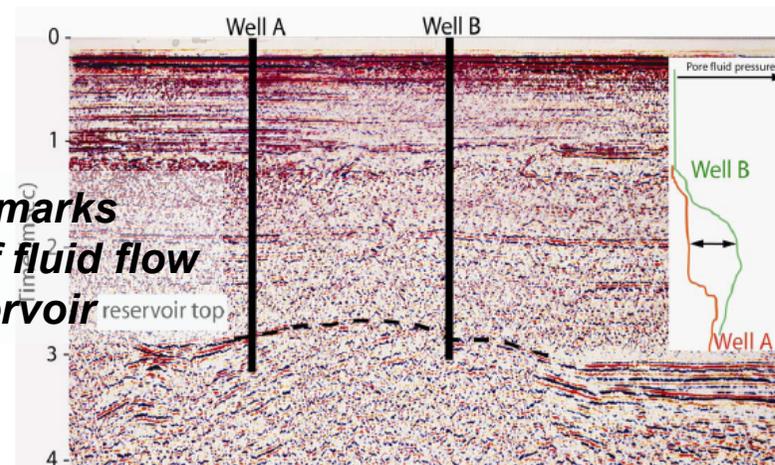
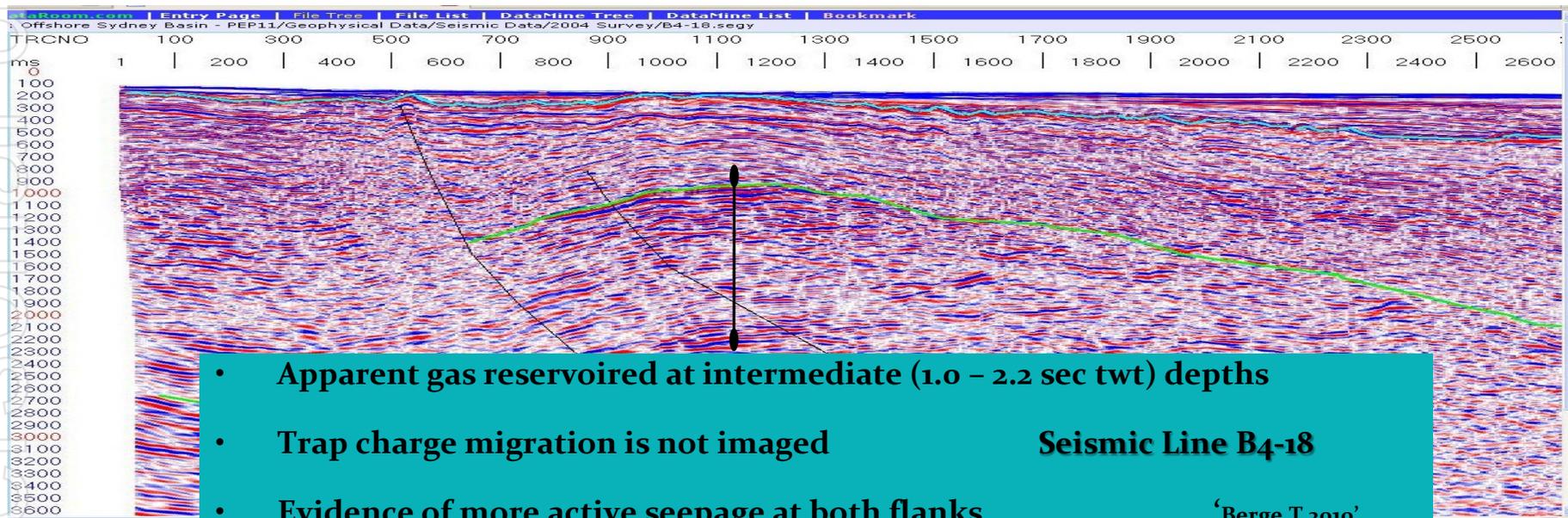
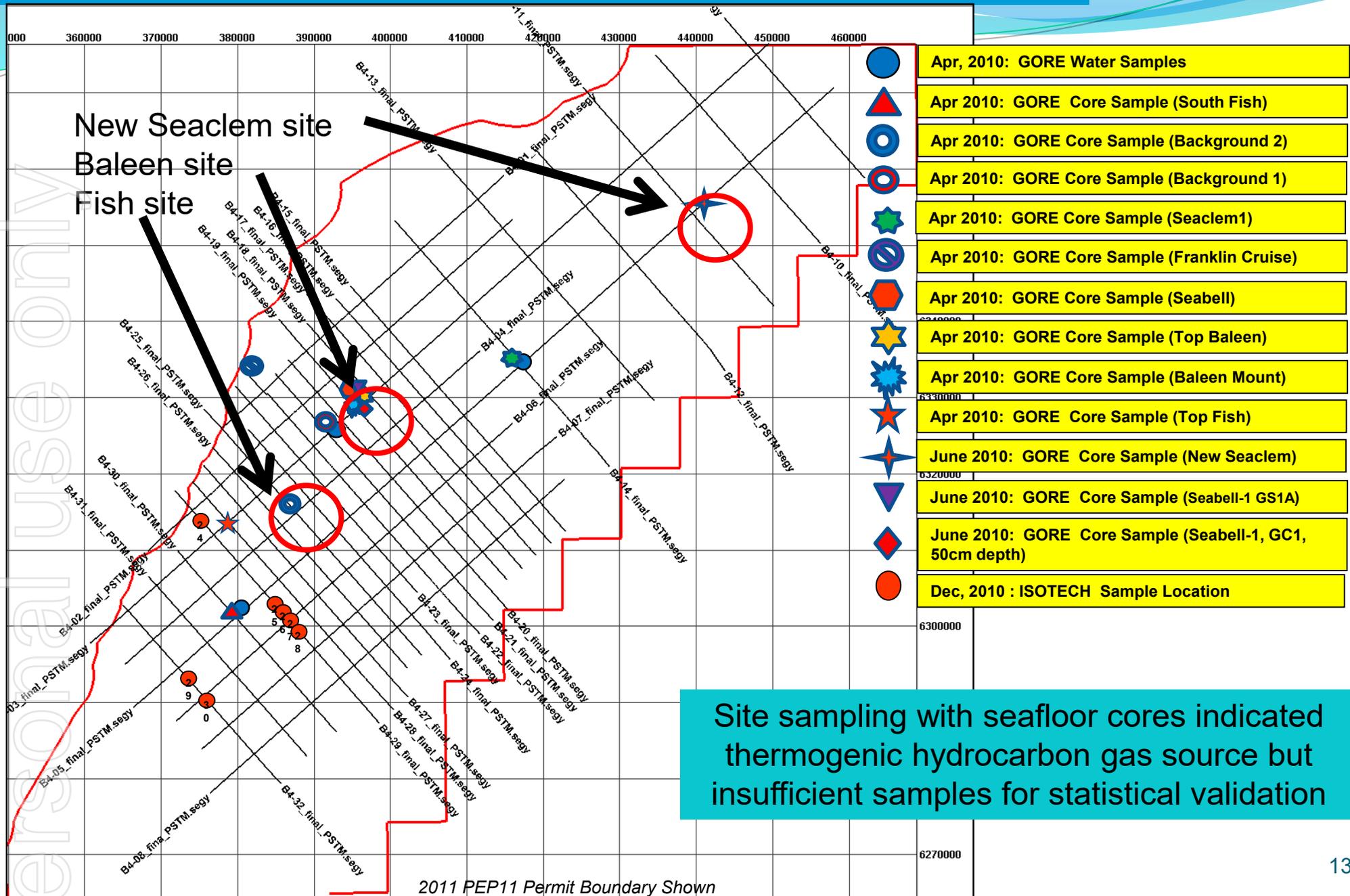


Figure 6.8: Seismic section across the Gullfaks South field (Norwegian North Sea) showing a gas cloud (a zone in which the acoustic layering is obscured by the presence of gas) above the petroleum reservoir. Well A lies outside the gas cloud, Well B passes through it. In Well B mud gas readings were found to be much higher, there were higher hydrocarbon gas components (C2 to C5), more gas shows, and higher pore fluid pressure (see inset) than Well A, outside the chimney; there was a 10.2 MPa pore fluid pressure difference between the two wells at the depth indicated by the two-ended arrow on the inset diagram. N.B. The vertical scale of the seismic section (in seconds, two way time), does not match the vertical scale (depth in km) of the pressure diagram. [Courtesy of Helge Løseth, Statoil.]

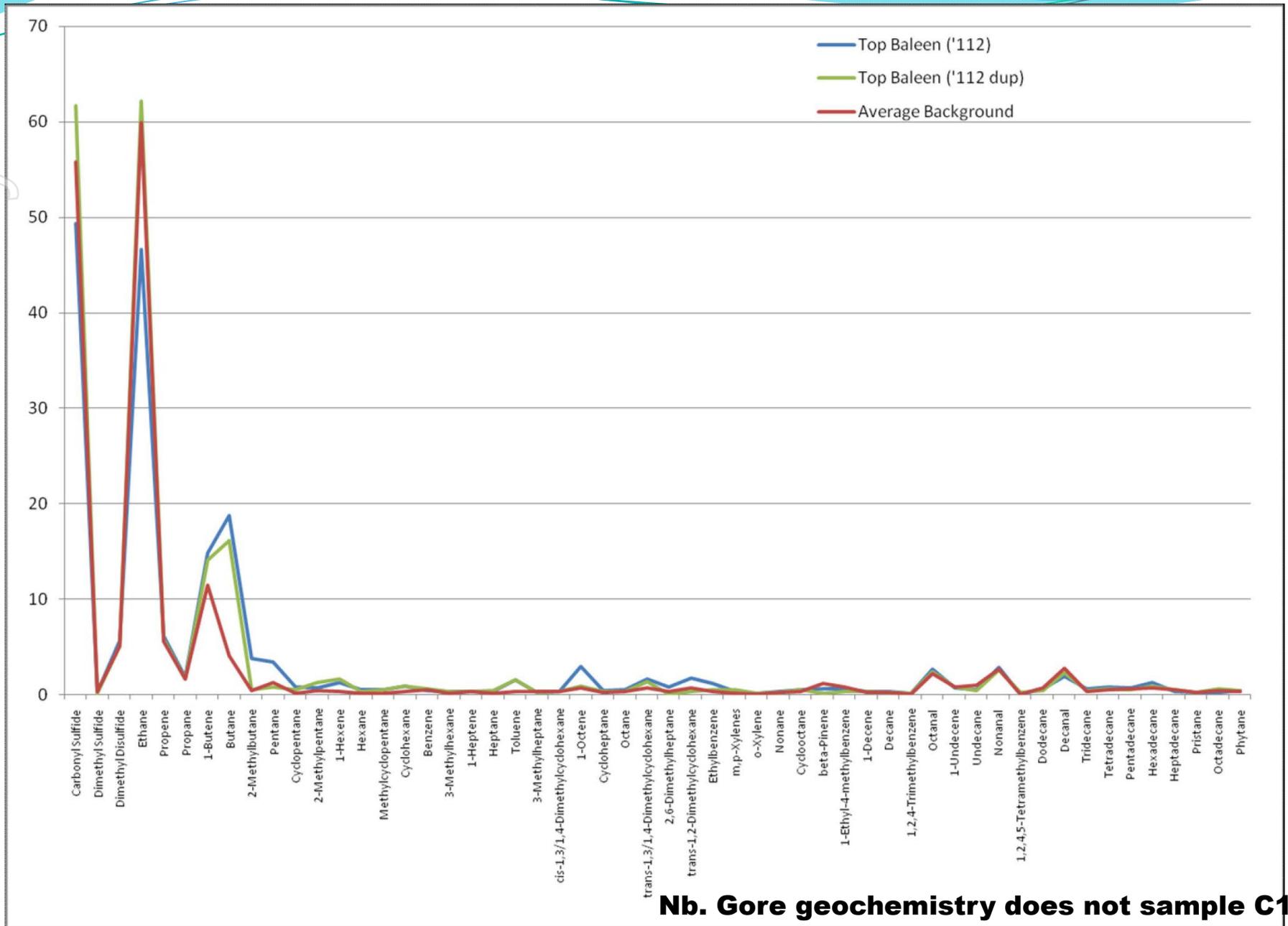


- Apparent gas reservoir at intermediate (1.0 – 2.2 sec twt) depths
  - Trap charge migration is not imaged
  - Evidence of more active seepage at both flanks
- Seismic Line B4-18**  
'Berge T 2010'

# Thermogenic hydrocarbon seepage analysis points offshore NSW

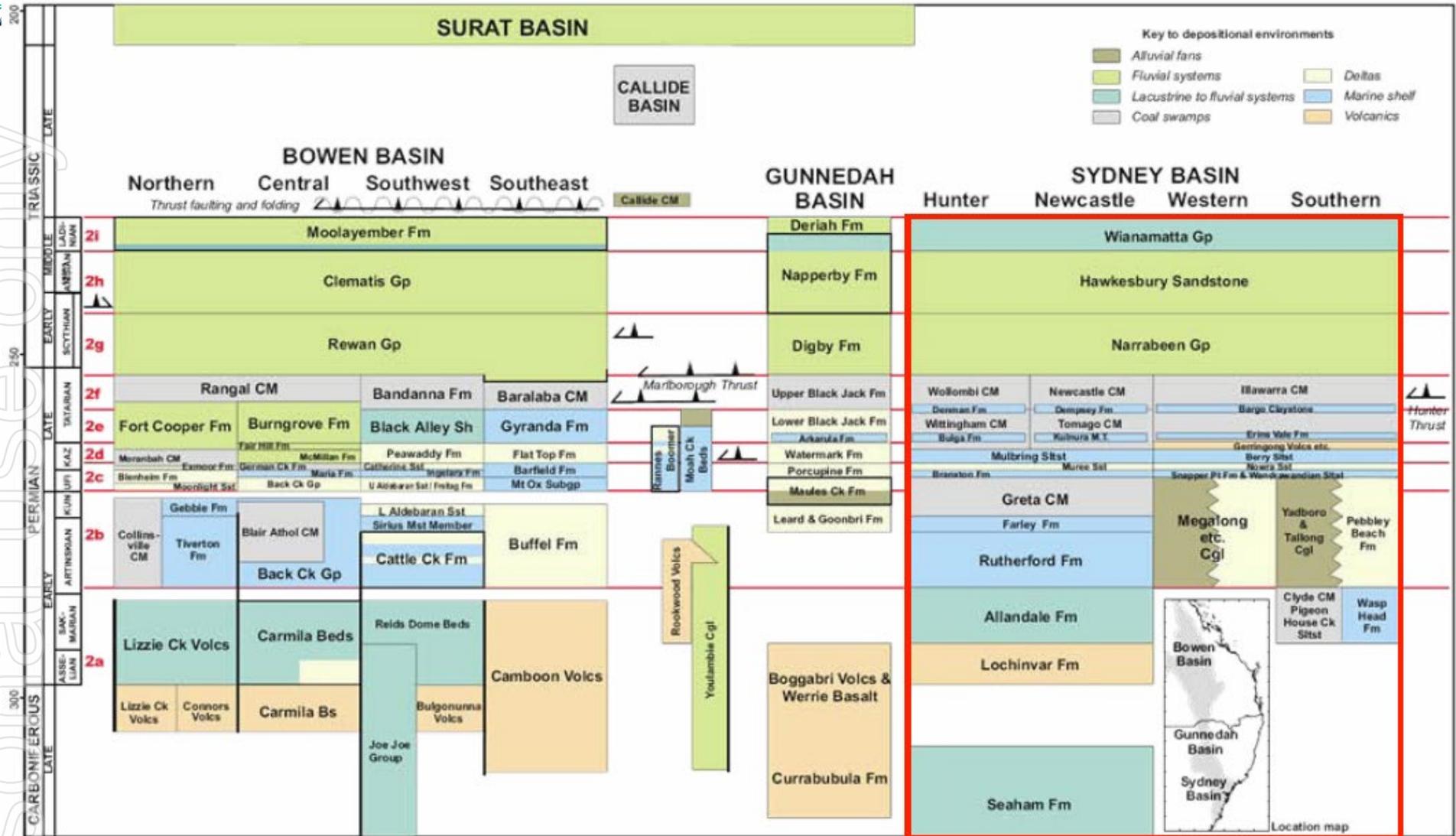


# Advent Energy: Gore samples exposed to sediments at 'Top Baleen' site



**Nb. Gore geochemistry does not sample C1**

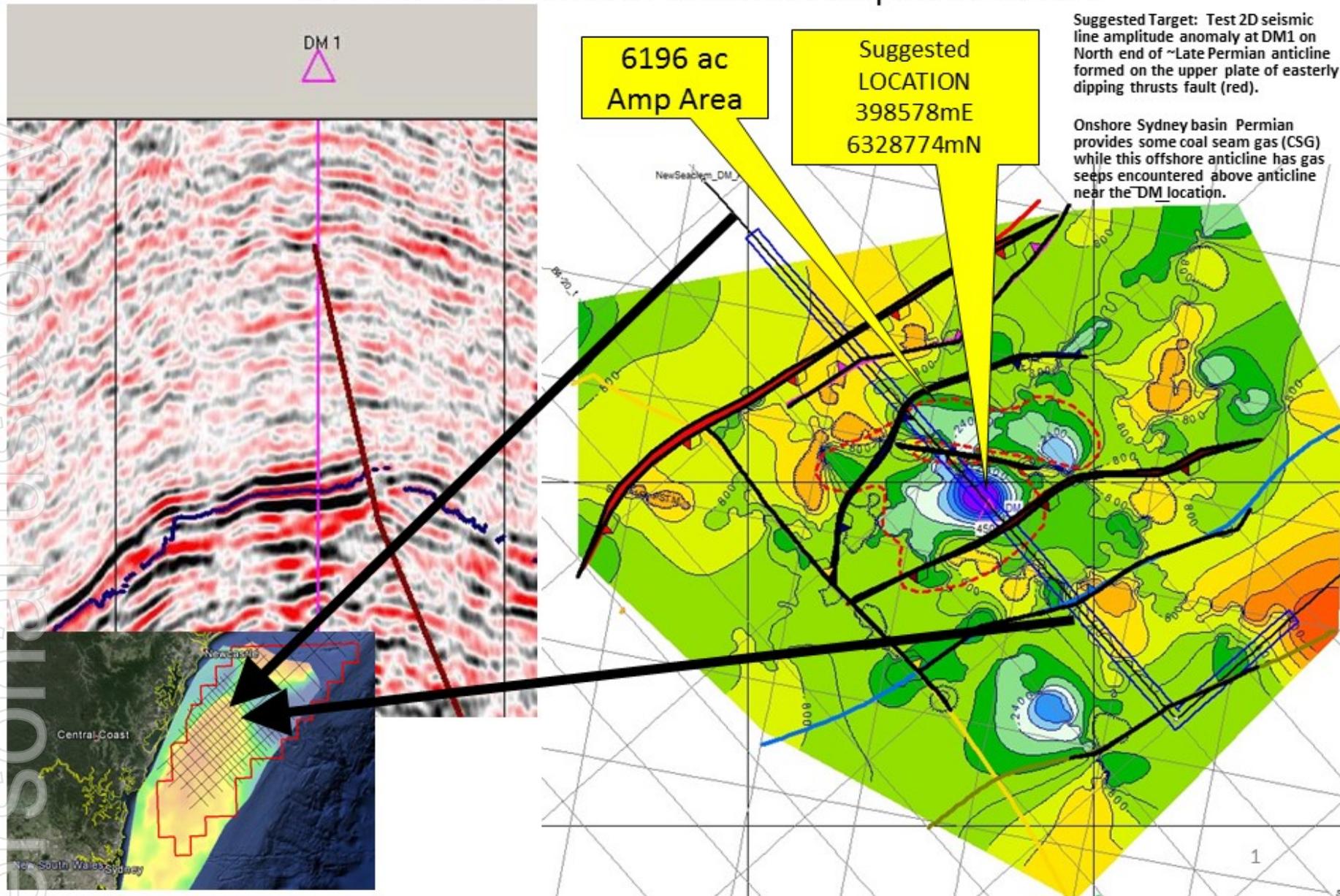
ersonal use only



From Blevin et al., 2007, Sydney Basin Reservoir Prediction Study and GIS, Project MR705, Confidential Report to NSW DPI and Macquarie Energy by Frog Tech Pty Ltd

# Near Top Permian / Base Triassic amplitude extraction

Estimate: 6196 acres of estimated amplitude closure



Suggested Target: Test 2D seismic line amplitude anomaly at DM1 on North end of ~Late Permian anticline formed on the upper plate of easterly dipping thrusts fault (red).

Onshore Sydney basin Permian provides some coal seam gas (CSG) while this offshore anticline has gas seeps encountered above anticline near the 'DM' location.

6196 ac  
Amp Area

Suggested  
LOCATION  
398578mE  
6328774mN

(25 sq  
km)\*



ADVENT ENERGY LIMITED

# Disclaimer and Important Information

- ▶ This company presentation (the “Company Presentation”) of Advent Energy Limited (the “Company”) has been prepared by the Company solely for information purposes and for the sole use of the person to whom it is delivered. The Presentation is prepared for discussion purposes only. The Presentation does not constitute, and should not be construed as, any offer or invitation or recommendation to buy or sell any of the securities mentioned or described herein. The presentation and its contents are strictly confidential and may not be reproduced or redistributed, in whole or in part, to any other person than the intended recipient. The distribution of it and any offering, subscription, purchase or sale of securities issued by the Company may in certain jurisdictions (including but not limited to USA, Canada, Japan, Australia and Hong Kong) be restricted by law. Applications for shares (if any) will only be considered on the terms of the final application terms if and when issued. This Company Presentation has not been and will not be reviewed or registered with any public authority or stock exchange.
- ▶ This Company Presentation and the information contained herein is strictly confidential and may not be distributed, reproduced or used, in whole or in part, without the consent of the Company and may not be used for any purpose other than the evaluation of the business of the Company by the person to whom this Company Presentation is delivered.
- ▶ The Company does not make any representation or warranty (whether express or implied) as to the correctness or completeness of the information contained herein, & the Company nor any of its respective parent or subsidiary undertakings or any such person’s affiliates, directors, employees, representatives or advisors assume any liability connected to the Company Presentation and/or the statements herein.
- ▶ The contents of this Company Presentation are not to be construed as financial, legal, business, investment or tax advice. Each recipient should consult with its own financial, legal, business, investment and tax advisers as to financial, legal, business, investment and tax advice. By attending or receiving this Company Presentation you acknowledge that you will be solely responsible for your own assessment of the market and the market position of the Company and that you will conduct your own analysis & be solely responsible for forming your own view of the potential future performance of the Company’s business & an investment in the Company. An investment in the Company involves significant risks, & several factors could cause the actual results, performance or achievements of the Company to be materially different from any future results, performance or achievements that may be expressed or implied by information in this Company Presentation.
- ▶ Included in this Company Presentation are various “forward-looking statements”, including but not limited to statements regarding the intent, opinion, belief or current expectations of the Company and/or its management with respect to, among other things, (i) goals and strategies, (ii) plans for new business development, (iii) marketing plans and the Company’s target markets, (iv) evaluation of the Company’s markets, competition and competitive position, and (v) trends which may be expressed or implied by financial or other information or statements contained herein. Such forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties and other factors that may cause the actual results, performance and outcomes to be materially different from any future results, performance or outcomes expressed or implied by such forward-looking statements.
- ▶ The distribution of this Company Presentation and the offering, subscription, purchase or sale of shares, issued by the Company in certain jurisdictions is restricted by law. Persons into whose possession this Company Presentation may come are required to inform themselves of and to comply with all applicable laws and regulations in force in any jurisdiction in or from which it invests or receives or possesses this Company Presentation and must obtain any consent, approval or permission required under the laws and regulations in force in such jurisdiction, and the Company shall not have any responsibility or liability for these obligations. This Presentation does not constitute an offer to sell or a solicitation of an offer to buy any securities in any jurisdiction to any person to whom it is unlawful to make such an offer or solicitation in such jurisdiction. The Company’s Securities have not been and will not be registered under the U.S. Securities Act of 1933, as amended (the “Securities Act”) or the securities laws of any state of the United States.
- ▶ The Company Presentation is made and reflects views as of May 2021. As a recipient of the Company Presentation, you accept that the information contained herein may be subject to changes. The Company does not intend, and does not assume any obligation, to update or correct any information included in this Company Presentation.
- ▶ This Company Presentation is subject to Australian law. Any dispute arising from this Company Presentation is subject to the jurisdiction of the Australian courts.