

# Norwest Energy NL

## Portfolio Review with a Xanadu Focus



**SHELLEY ROBERTSON**  
Managing Director & CEO

**Australian Energy & Battery Minerals  
INVESTOR CONFERENCE  
Brisbane 14-15 March 2018**

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# Norwest Energy N.L.

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A Junior Exploration Company

Listed on the Australian Stock Exchange for 20+ years



ASX:NWE

# Board & Management



## Michael Fry, Non-Executive Chairman



- Extensive experience in capital markets and corporate treasury, specialising in risk management.
- Non-Executive Chairman of Brookside Energy and Challenger Energy Limited.

## David Kennedy, Non-Executive Director



- Founding Shareholder & Director of NWE.
- Long association with Australian and New Zealand resource companies.
- Established several successful listed companies (Pan Pacific Petroleum, NZ Oil & Gas, Mineral Resources and Otter Exploration). Chairman of Pancontinental Oil and Gas NL.

## Jim Tarlton, Board Advisor



- 30+ years of oil and gas experience in drilling, production, reservoir engineering and asset management.
- Technical Director, Tamarind Resources.
- Previous VP Operations, Talisman Energy Malaysia.
- Co-Founder and Director of Well Experts Services
- BA Science (Honours) in Chemical Engineering from Queen's University, Canada.

## Shelley Robertson, Managing Director & CEO



- Significant senior management experience in the resources industry with 25+ years experience in O&G, mining, infrastructure and renewables.
- On the senior management team since 2010.
- BSc(Eng), GradDip(IT), MEngSc(Pet Eng), MBA(Oil & Gas), SPE & PESA Membership.
- Board Member Telethon T1D Family Centre
- Order of Australia Bravery Medal 2006

## Jo-Ann Long, CFO & Company Secretary



- Corporate Finance Executive and CA with over 25 years of experience in building, leading and advising corporations on financial management, restructures, international expansion, acquisitions and risk management
- Strong expertise in JV management, tax strategies and governance.
- Member of the Australian Institute of Company Directors

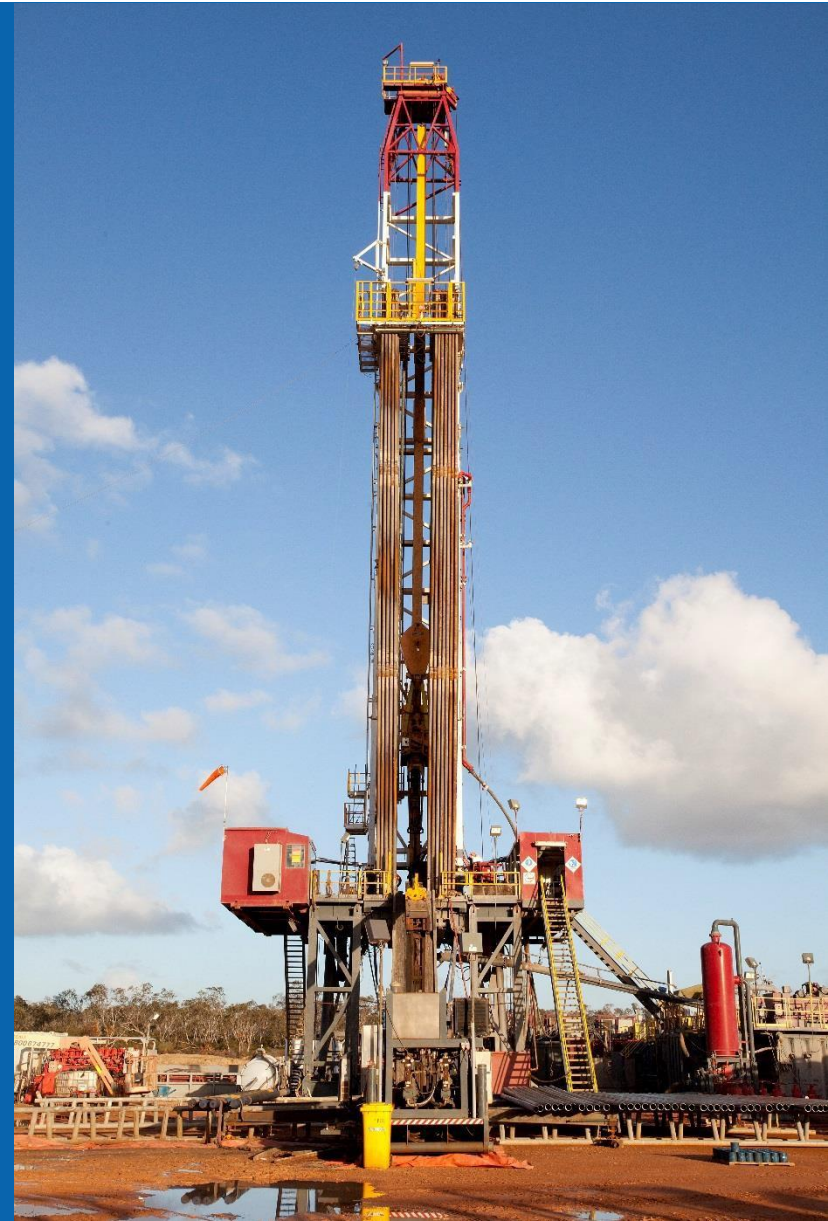
## Corporate Details

ASX code	NWE
Share price (as at 12/03/2018)	0.3 cents
Ordinary shares	3,382,092,727
Market capitalisation	A\$10 million
Cash (as at 31 Dec 2017)	A\$1.8 million
Debt	Nil

# About Norwest



- ASX-Listed Exploration Company ASX:NWE
- Project portfolio with a focus on the northern Perth Basin, located within a known hydrocarbon fairway and surrounded by O&G discoveries
- Projects strategically located close to pipelines, infrastructure and markets meaning fast-track, low cost development options
- Demonstrated delivery of successful projects that meet technical objectives and are consistently under-budget
- Ongoing review of opportunities to expand project portfolio, create company growth and increase shareholder value
- Xanadu Discovery will drive an intensive exploration program planned for 2018 and beyond



# Northern Perth Basin





# Northern Perth Basin

DMIRS map highlighting companies active in the Northern Perth Basin

Nominees		Applicants	
4	Empire Oil *	7	UIL Energy
5	AWE Perth	8	Origin Energy
7	UIL Energy	35	Bunbury Energy
8	Origin Energy	37	Palatine Energy
9	Finder	38	Southern Sky Energy
11	Latent Petroleum		
21	Oceanhill		
22	CalEnergy Gas		
26	Key Petroleum #		
27	Macallum Group		
28	Norwest Energy +		
30	Pilot Energy		
31	Warrego Energy		
32	Westranch +		

Note:  
 \*# +/- Symbols indicate associated companies



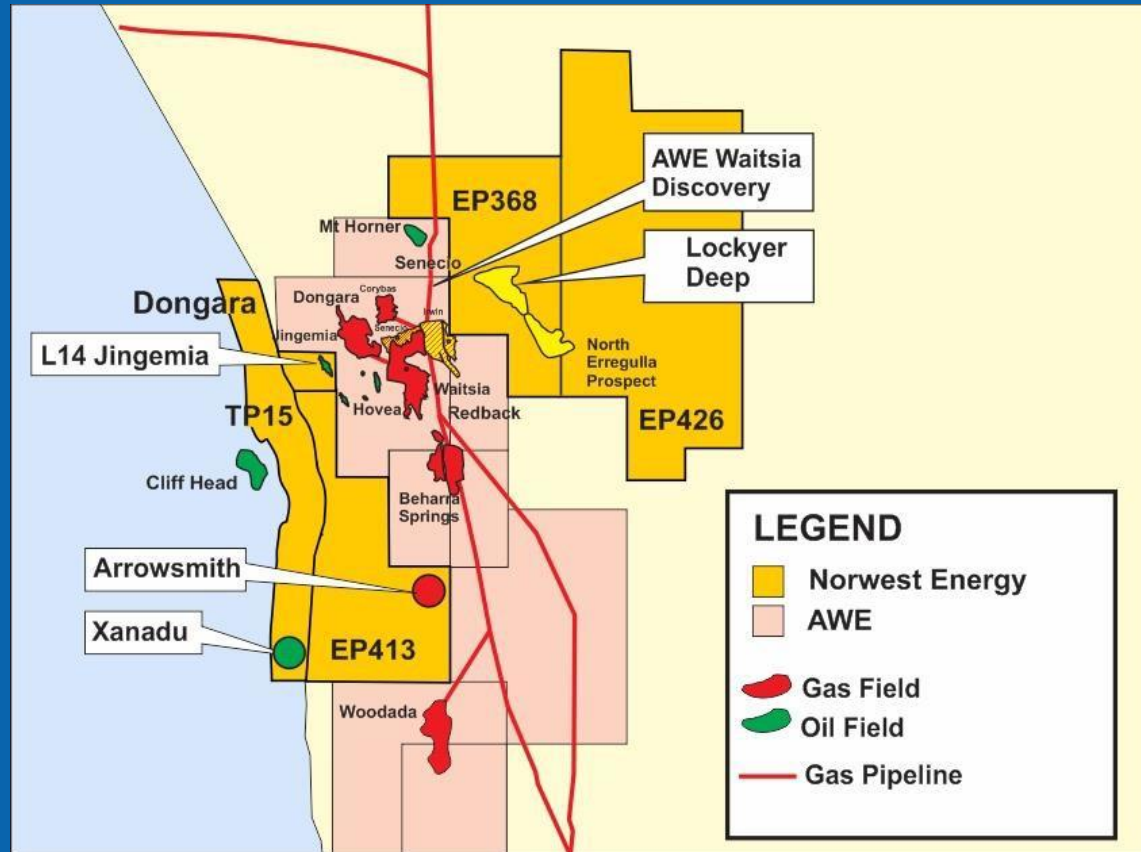
# Norwest Energy – project portfolio





# NORWEST ENERGY PROJECTS

- Portfolio of assets with significant exploration potential and exciting opportunities for development and growth
- Projects strategically located, flanking the belt of existing discoveries and producing oil and gas fields in the Perth Basin
- Oil and gas projects in the portfolio
- Xanadu Discovery will drive an intensive exploration program planned for 2018 and beyond
- Jingemia revenue stream expected to commence later this quarter



Map highlighting proximity to AWE assets and basin infrastructure



# Project Summary

TP/15	OIL	NWE 25% OPERATOR	SEISMIC Q2 2018 (Pending regulatory approvals)
L14	OIL PRODUCTION, OIL & GAS EXPLORATION UPSIDE	NWE 6.278%	RECOMMENCE PRODUCTION EVALUATE UPSIDE
EP368	OIL & GAS	NWE 20%	DRILL LOCKYER-DEEP 1
EP413	OIL, GAS & CONDENSATE	NWE 27.945% OPERATOR	ON HOLD PENDING STATE GOVERNMENT INQUIRY INTO HYDRAULIC FRACTURE STIMULATION
EP426	OIL & GAS	NWE 22.22%	SEISMIC COMMITMENT

# TP/15 Xanadu Discovery



## Joint Venture

Norwest Energy Operator	25%
Triangle (Global) Energy	30%
3C Group	30%
Whitebark Energy	15%

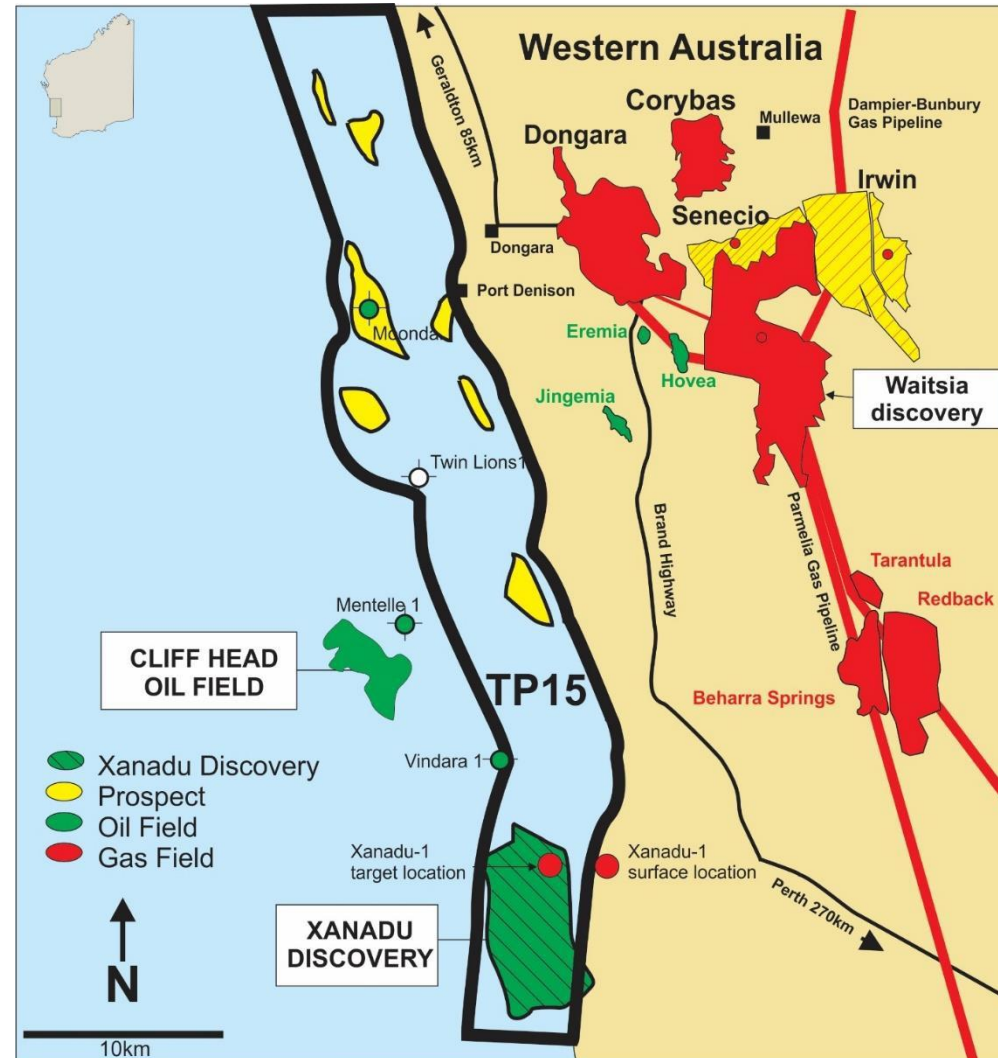
*Xanadu-1 Drilling Location, 11 September 2017*





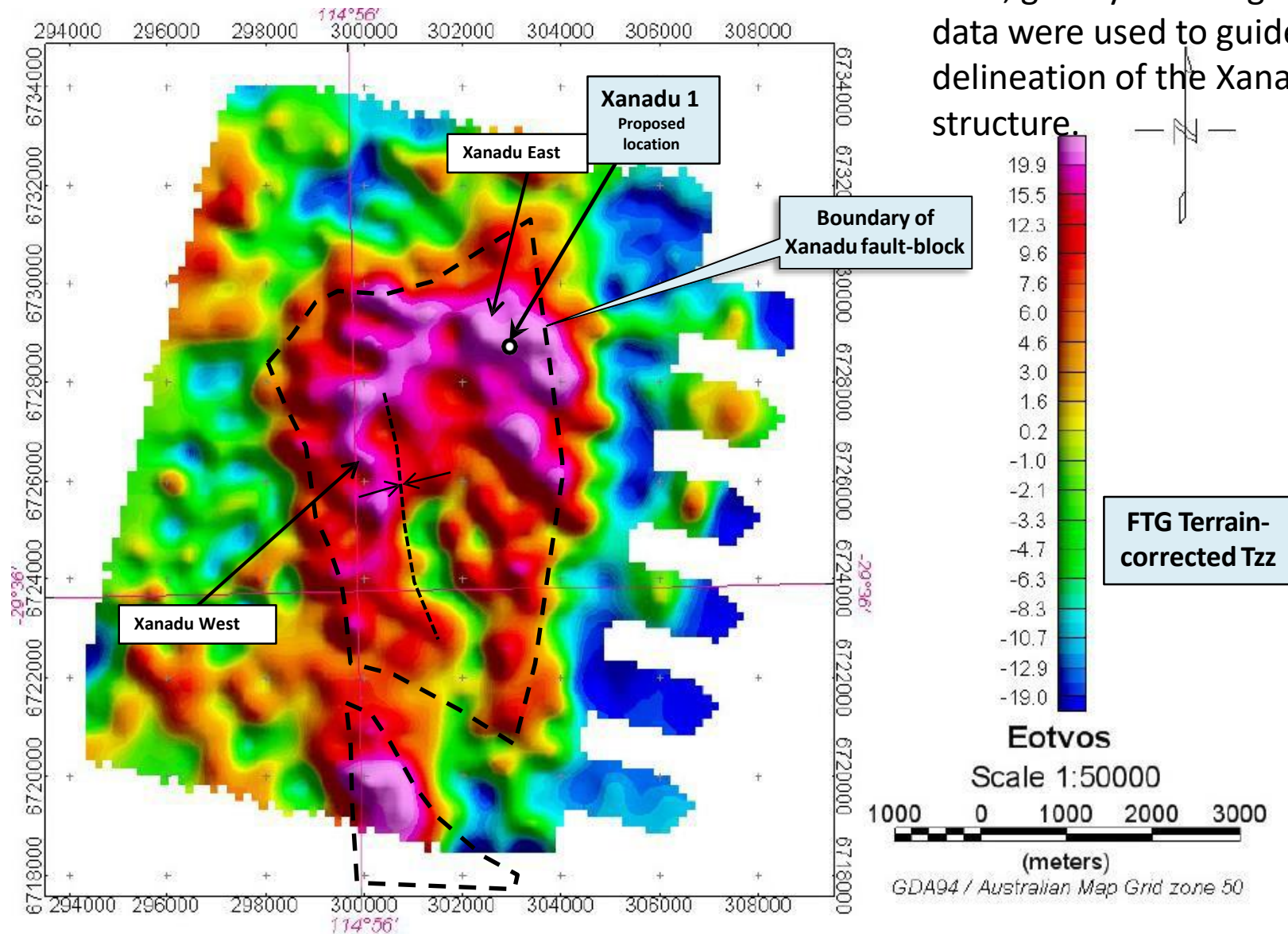
# Xanadu Discovery

- The **Xanadu Discovery** is located within TP/15, located in the northern Perth Basin approximately 250 km north of Perth.
- The permit occupies the 3 nautical mile wide state territorial waters of Western Australia adjacent to the township of Port Denison, and covers an area of 645.8 km<sup>2</sup>.
- The Xanadu structure is a prominent horst feature near the northern end of the Beagle Ridge. Although seismic control is limited to just seven 2D lines, gravity and magnetic data help delineate the structure. The crest of the structure is located near the northeast corner of the horst, with substantial dip to the west.



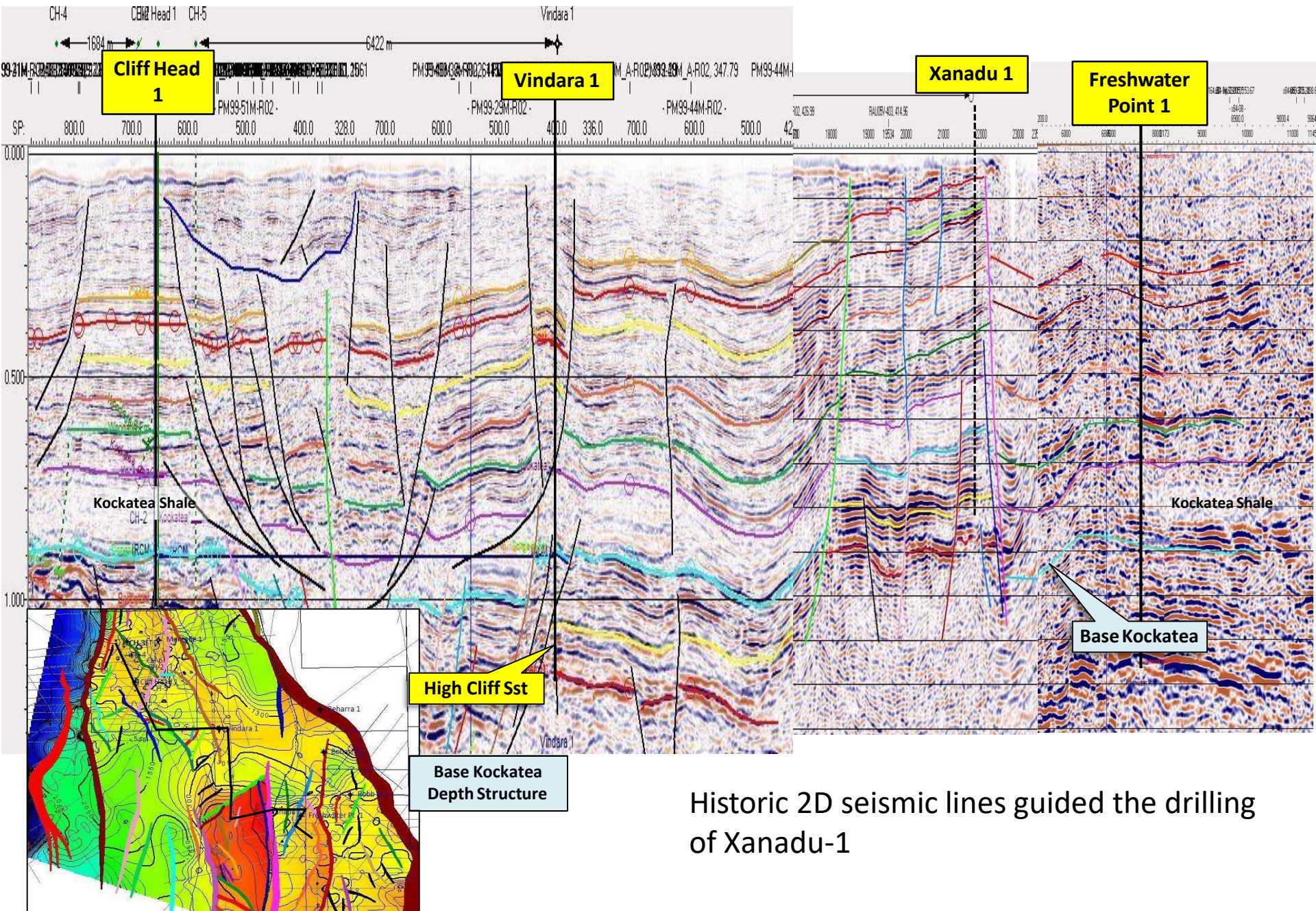


Due to the deficit of seismic lines, gravity and magnetic data were used to guide the delineation of the Xanadu structure.





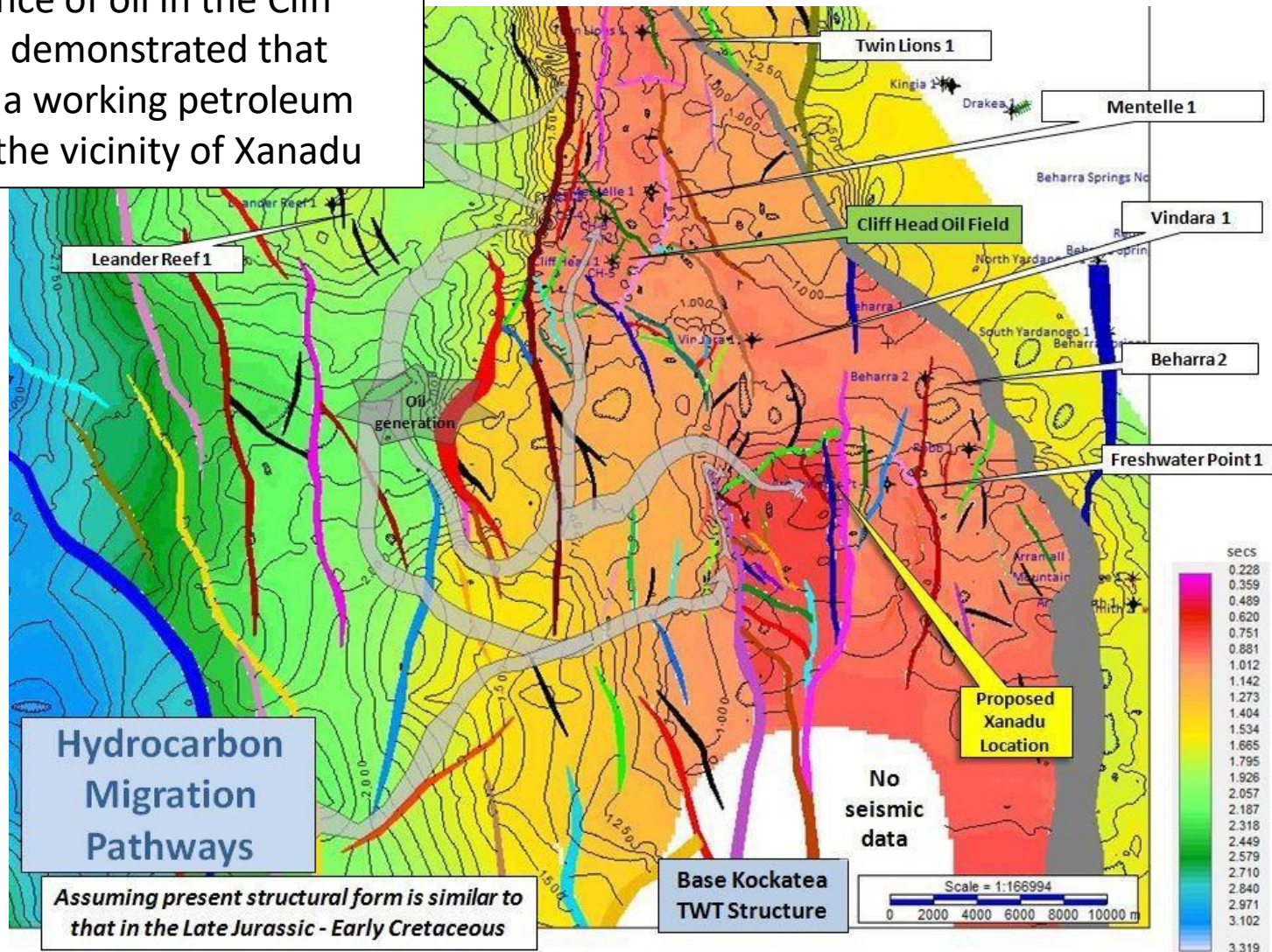
# Cliff Head – Vindara 1 – Xanadu - Freshwater Point 1





# Hydrocarbon Charge Pathways – Cliff Head Oil Field Analogue with shared oil generation source (kitchen) to the west of Xanadu

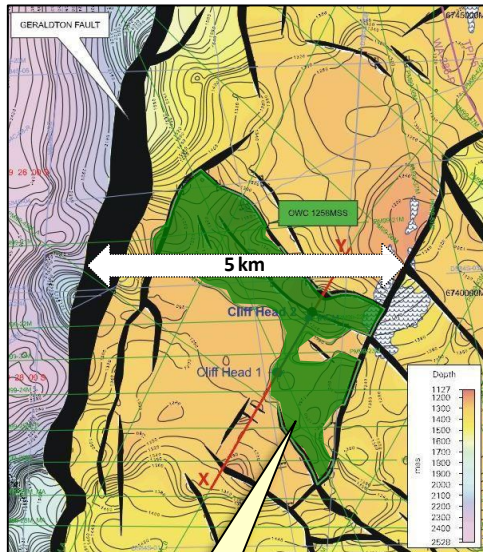
The presence of oil in the Cliff Head field demonstrated that there was a working petroleum system in the vicinity of Xanadu





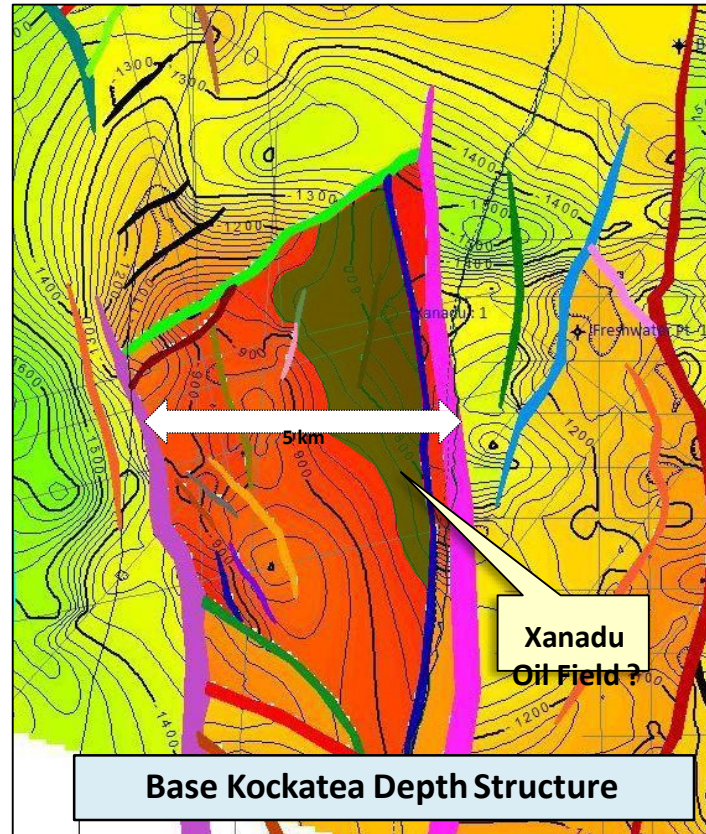
# Size & Structural Comparison

**Cliff Head Oil Field**



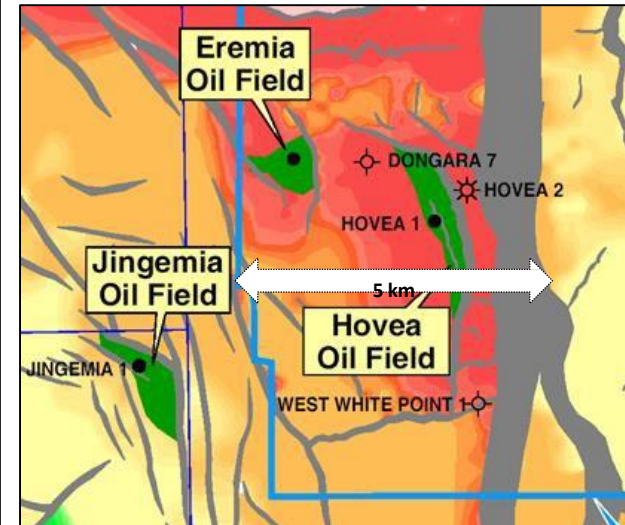
**Cliff Head  
Oil Field**

**Xanadu Discovery**



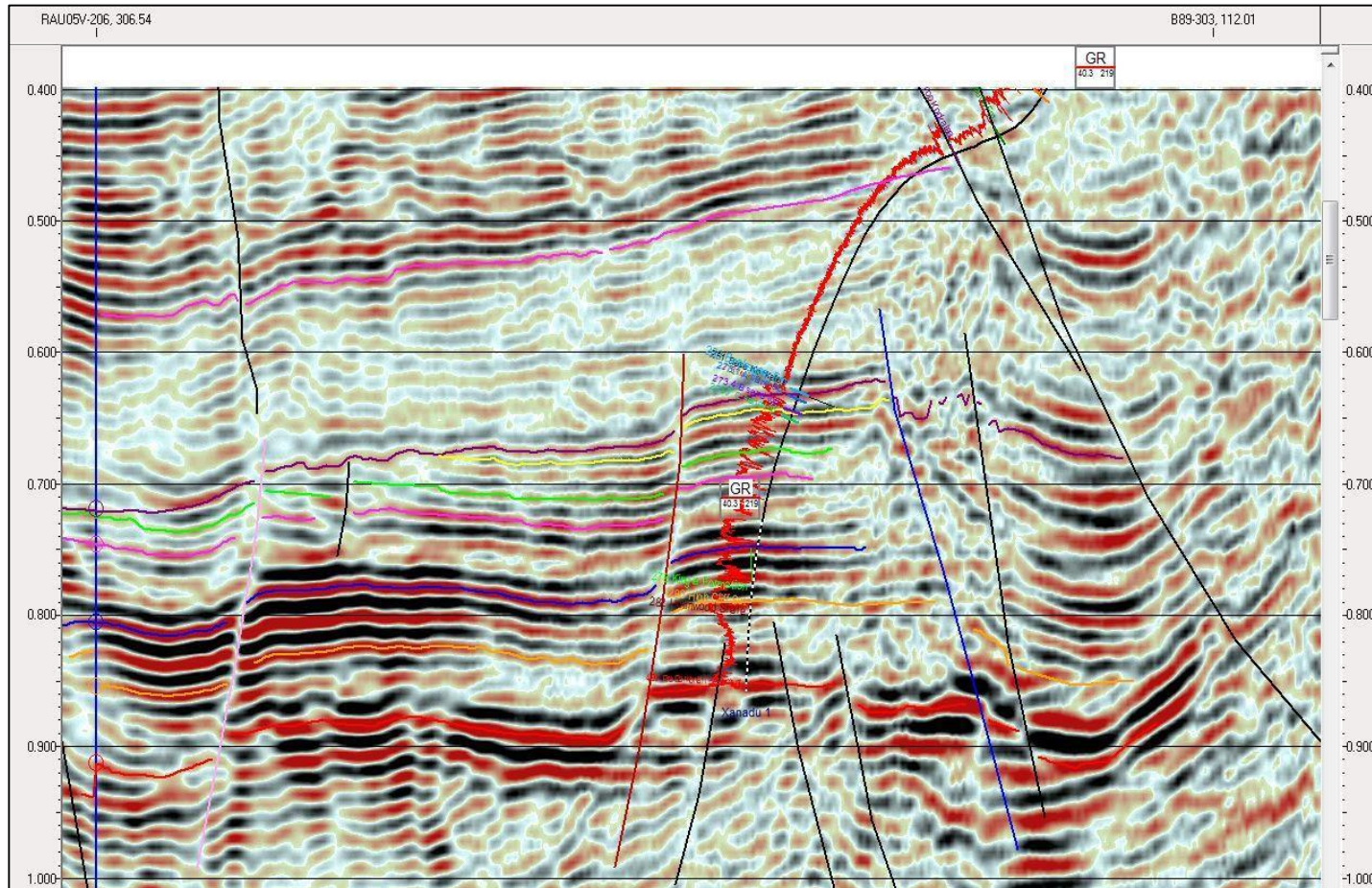
**Base Kockatea Depth Structure**

**Hovea Oil Field**





- The drilling of Xanadu-1 commenced in September 2017. On 18 September 2017, the well intersected hydrocarbon-bearing reservoirs, and a comprehensive logging program was immediately implemented.



*Wellpath for Xanadu 1 projected on to line RAU05V-403*



- The depth to the base of the Kockatea Shale was deeper than prognosed due to a faster than expected sedimentary section, presumably a result of uplift of the Xanadu structure relative to adjacent areas.
- Wireline logs over a 330m section confirmed reservoir quality sands throughout the Irwin River Coal Measures (IRCM), with porosities between 15-16%, and three sands identified as A,B and C sands recording log-derived hydrocarbon saturations between 41-66%.
- Oil sample analysis confirmed that Cliff Head Oil Field (located 14km to the NW) is an analogue.

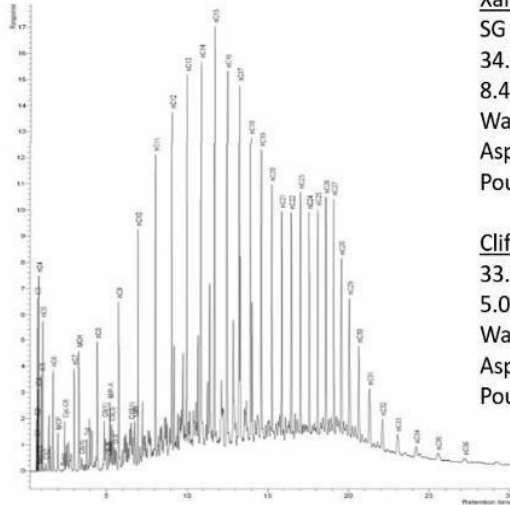
NORWEST ENERGY  
XANADU-1

DRAFT REPORT  
RFL 201703597

Fingerprint Profile of Flashed Liquid  
MPSR Oil, Chamber No. 3348 (Depth 1576.9 m MD)

Xanadu-1 (207 11.1)  
Acquired Thursday, 28 September 2017 5:43:35 PM

ms24082017.ms\_2\_13152.1.1.1



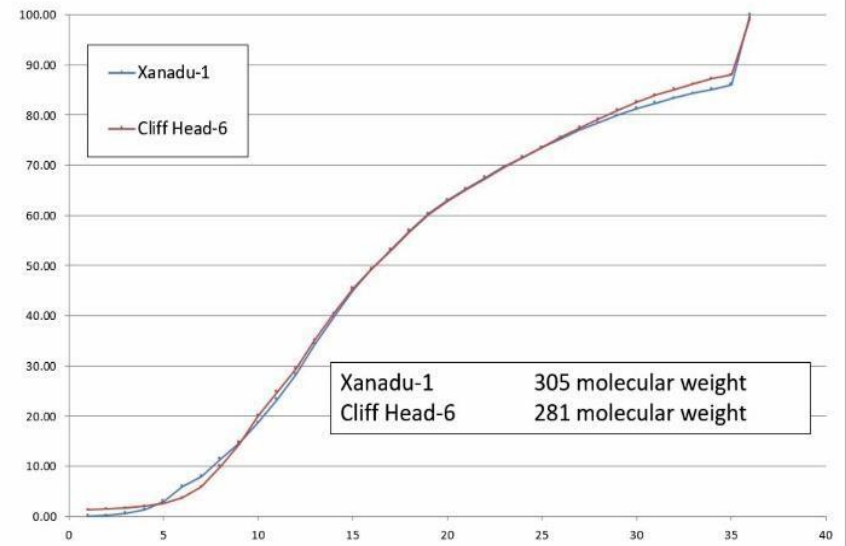
Xanadu-1 @ 1576.9 mMDRT

SG 0.8518 @ 15.6 °C  
34.6 °API @ 60 degF  
8.4 cp at reservoir conditions  
Wax = 17.4%  
Asphaltenes = 0.1%  
Pour Point = 30 °C

Cliff Head-6

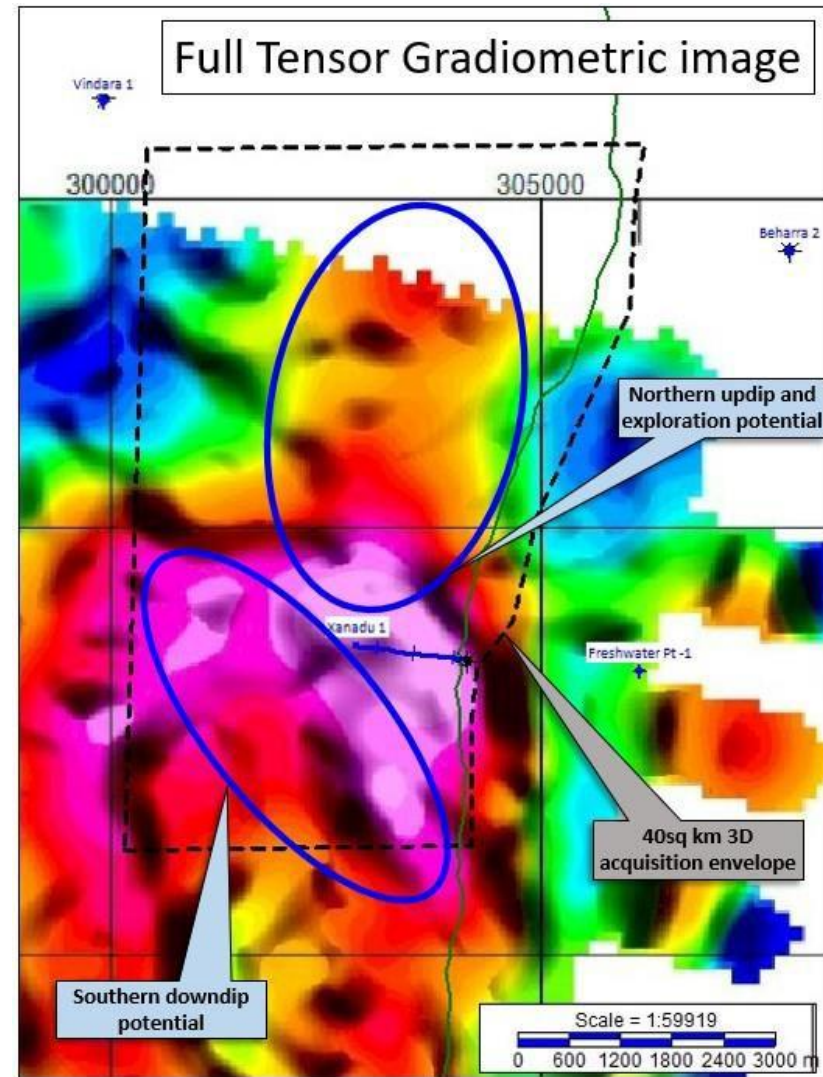
33.3 °API @ 60 degF  
5.0 cp at reservoir conditions  
Wax = 26.9%  
Asphaltenes = 3.4%  
Pour Point = 33 °C

Cum Mole % vs Carbon Number



# TP/15 – Xanadu Discovery

- New mapping conducted post-drilling suggests the Xanadu structural culmination is north of Xanadu-1 location. However with no seismic available in this area, it is not possible to reliably estimate gross rock volumes. This highlights the need to acquire additional seismic over the Xanadu structure.
- A 42km<sup>2</sup> 3D seismic survey is planned for later in Q2 2018.
- The 3D seismic dataset will allow us to calculate OOIP and recoverable volumes, and future drilling locations.
- Two zones being targeted in the seismic program - Northern updip potential can be drilled from onshore. Southern downdip potential would likely require offshore drilling.



42 KM<sup>2</sup> 3D Seismic Survey Acquisition area overlying a full tensor gradiometric image, highlighting up-dip and down-dip potential at Xanadu.

# Xanadu Discovery

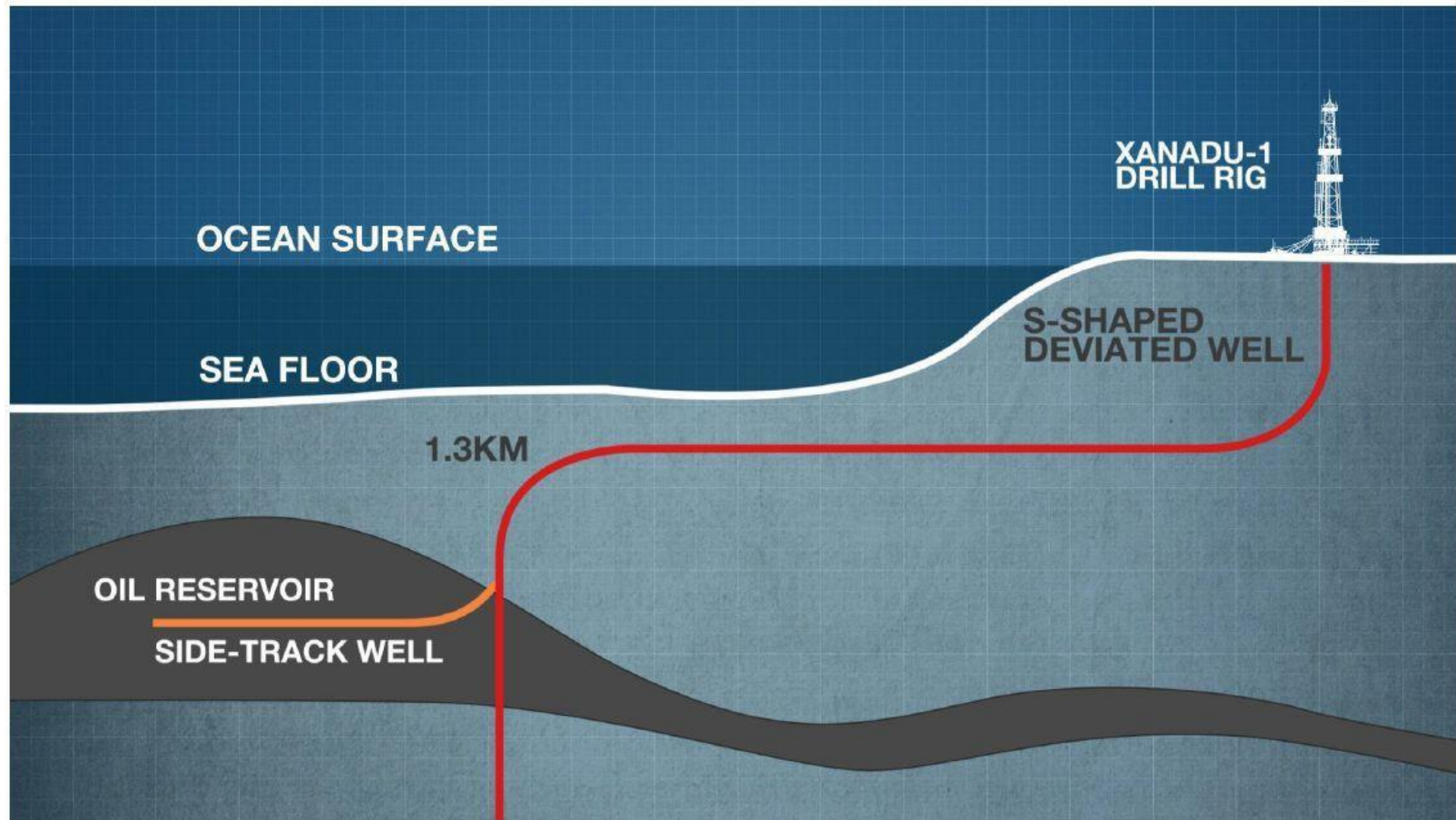
- The Cliff Head discovery well identified a gross 4.8m oil column at the top of the IRCM – the same stratigraphy encountered at Xanadu-1, and was side-tracked to a more favourable up-dip location where a 36m gross oil column was intersected.
- Assuming the Xanadu structure continues to rise to the north of the current seismic coverage, the TP/15 JV would hope to drill a side-track well from the Xanadu-1 location, potentially as a horizontal producer, with the top section down to 971m MDRT already cased and cemented in place.
- Utilising the new seismic data, additional petrophysical data and further fluid contact data, robust volumetric estimates should be available later in 2018. Given positive well results, the development could be fast tracked given the proximity to the Arrowsmith oil production facility which supports Cliff Head.





# Xanadu-2 side-track profile

## targeting updip zone

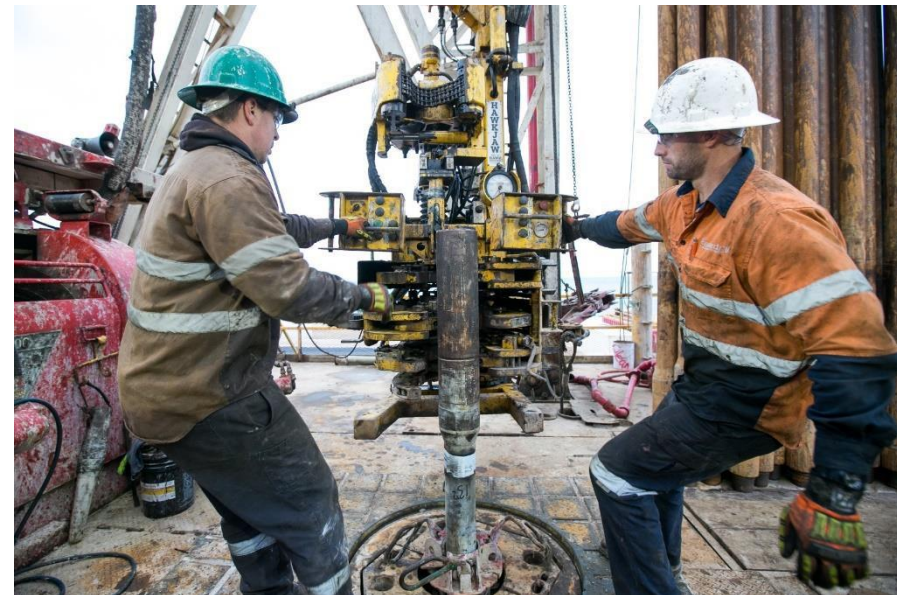




## XANADU DISCOVERY

### Steps in the Pathway to Development

- Drill Xanadu-1 Exploration Well (complete)
- Log analysis to target optimal intervals (complete)
- Oil Assays confirm Cliff Head Oil Field Analogue (complete)
- Acquire 42km<sup>2</sup> seismic over most prospective area (planning commenced)
- Processing and interpretation of seismic
- Reservoir Engineering Modelling
- Estimate OOIP and Recoverable Resource
- Economic scoping study to assess field economics and commerciality
- Drill & Well Test Appraisal Well to evaluate production rates
- Commence full field development
- Oil to market





# EP368 Lockyer Deep Prospect

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## Joint Venture

Mineral Resources Operator  
Norwest Energy

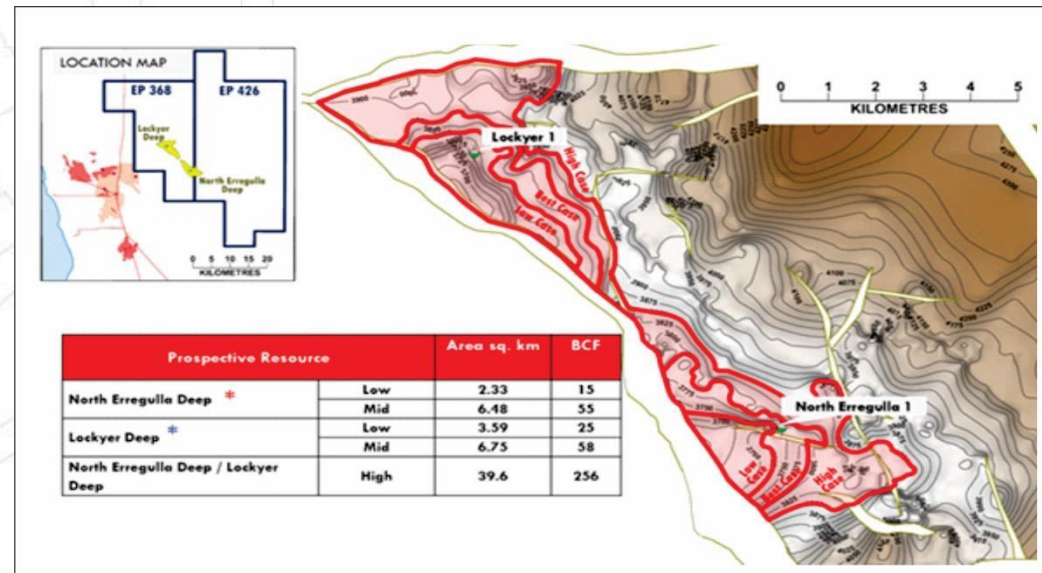
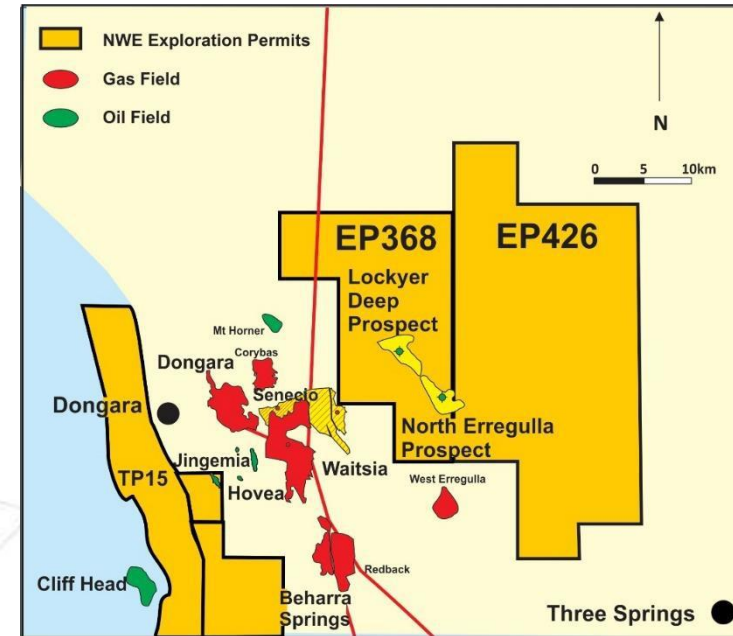
80%  
20%





# EP368 & 426

- Lockyer-Deep considered a major gas prospect 15 km from AWE's massive Waitsia discovery
- Two drillable prospects – Lockyer Deep and North Erregulla
- Deeper formations Kingia/High Cliff that were successful at Waitsia were not tested in the two historic wells in EP368
- Waitsia is the analogue – potential gas discovery here
- New partner Mineral Resources brings renewed focus to this exciting acreage



# EP413 Arrowsmith Project

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## Joint Venture

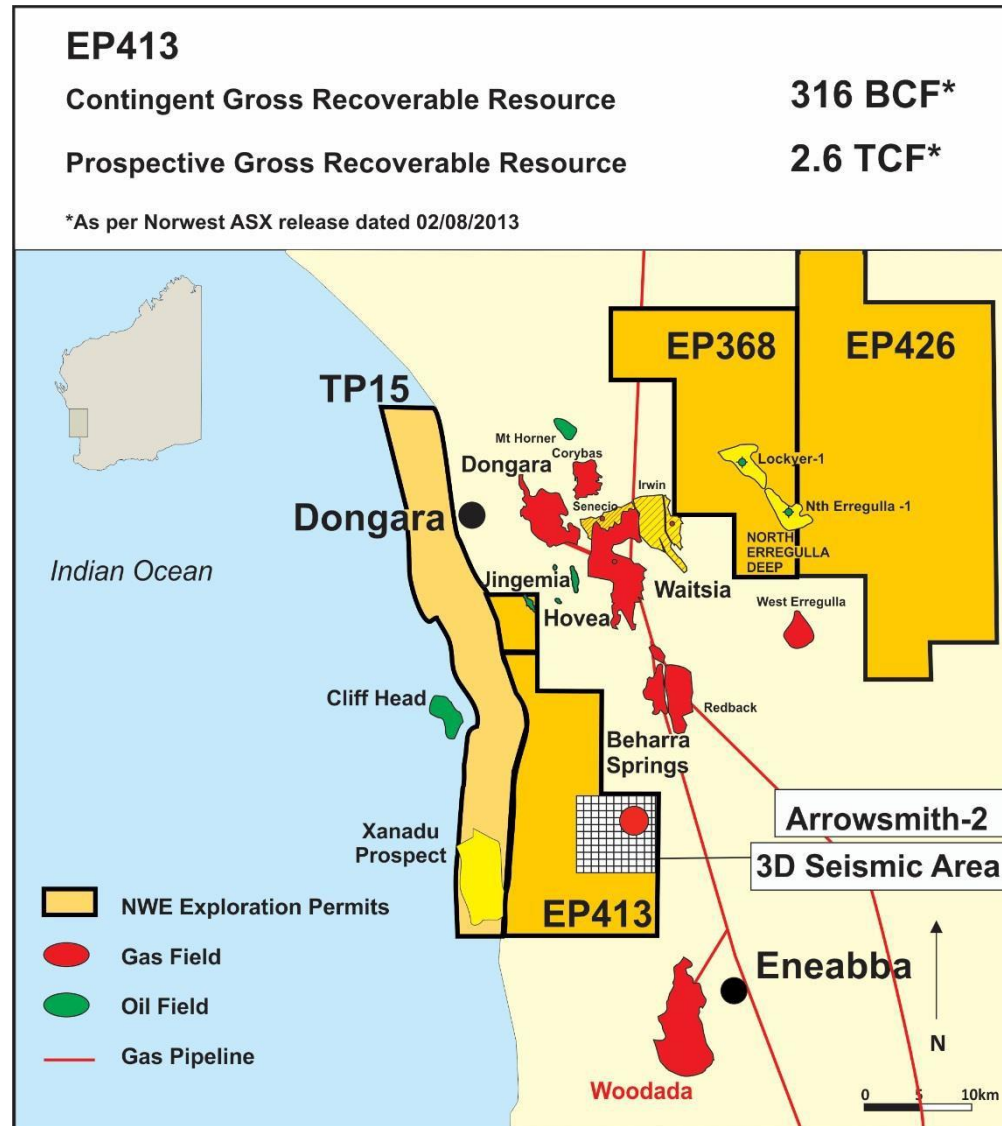
Norwest Energy Operator	27.945%
AWE Limited	44.252%
Bharat PetroResources (Indian Government)	27.803%



# EP413 ARROWSMITH PROJECT



- Located approximately 300km north of Perth.
- Arrowsmith-2 well drilled in mid-2011 resulted in the Arrowsmith Field being declared a discovery.
- 3D seismic acquisition carried out in 2015 with results greatly improving structural definition.
- Work program currently on hold due to WA state government technical inquiry into hydraulic fracture stimulation – results due August 2018.





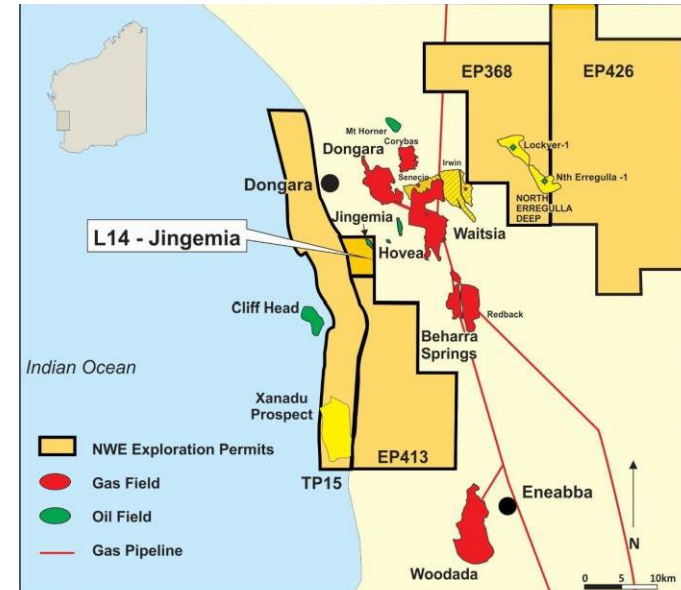
# L14

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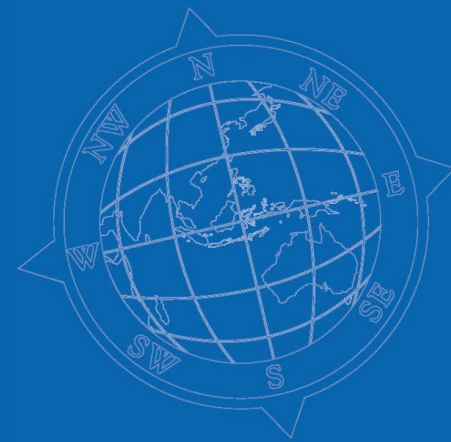
# JINGEMIA OIL FIELD

- The Jingemia Oil Field is estimated to have initially contained 12 million barrels of oil in place with approximately 4.6 million barrels produced to date
- Additional exploration potential has been identified within L14 providing further opportunity to extend field life if proven successful
- Planned well interventions currently underway to increase productivity of producing wells. Production expected to recommence in coming weeks.





# Strategic Focus & Priorities



## Short Term – next 12 months

High Impact program at Xanadu Discovery:

- Acquire 3D seismic over Xanadu structure
- OOIP and recoverable volumes statement released
- Development modelling for commercialisation of Xanadu Discovery
- Commence planning to drill & flow test Xanadu appraisal well\*

Complete well interventions at L14 and return to commercial production

## Medium Term – 1-3 years\*

TP/15: Commence Xanadu Full Field Development

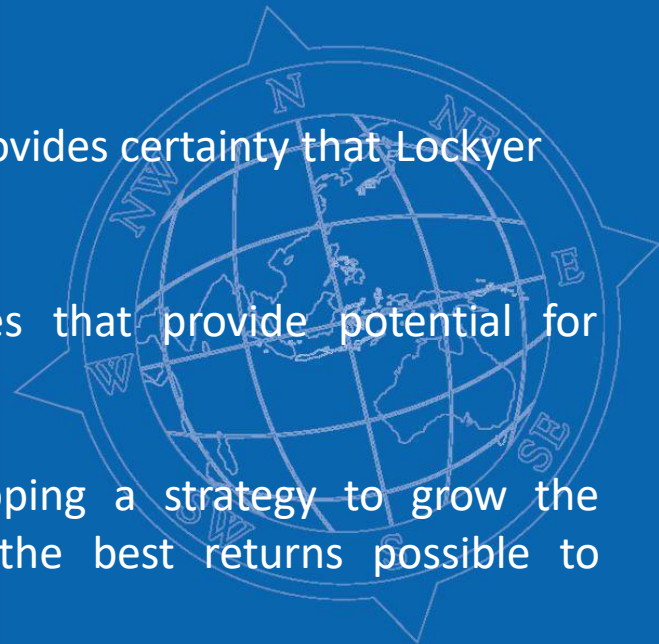
EP368: Drilling of Lockyer-Deep with partner Mineral Resources

EP413: Drilling of Arrowsmith-2 with partners AWE Limited and Bharat PetroResources

L14: Consider potential in L14 for future drilling to sustain production at Jingemia

# Summary

- Our main value driver is the Xanadu Discovery
- 2018 will deliver a high-impact, low cost program at Xanadu
- Jingemia production restart will provide cash flow
- Mineral Resources taking ownership of Empire Assets provides certainty that Lockyer Deep 1 will be drilled
- Ongoing commitment to looking at all opportunities that provide potential for company growth and increasing shareholder value
- Norwest Board active and currently engaged developing a strategy to grow the company, with the ultimate objective of providing the best returns possible to shareholders



**Norwest has a new website, and is now on Twitter. Sign-up via the website to receive company announcements and updates direct to your inbox**



# THANK YOU



*Xanadu-1 Drilling Location, 11 September 2017*