

# December 2015 Quarterly Report

29 January 2016



# **Summary**

**ASX: NWE** 

Norwest continues to retain a large footprint in the northern Perth Basin, with a net acreage position of 3,100km², containing seven permits with conventional and unconventional oil and gas prospects. Norwest's exploration portfolio is considered to contain a number of highly prospective targets, and the company's focus remains to be the realisation and development of these assets.

At the end of the quarter, a fund-raising initiative successfully raised \$1.3 million to assist in meeting work program commitments on the northern Perth Basin assets. In parallel, the company implemented a number of cost reduction initiatives in order to reduce spend and conserve cash.

There is currently a heightened focus between northern Perth Basin companies and service providers to work together to ensure an ongoing exploration program continues in the Basin. Norwest continues to play a proactive role to ensure that in a difficult market environment our exploration objectives can still be met.

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Norwest currently has three near-term drill targets identified, all set to be drilled within the next 12-18 months, subject to securing funding and regulatory approvals. The status of each of our permits is as follows:

- **EP368:** The main focus of this permit continues to be the drilling of the Lockyer-Deep-1 well, with operator Empire Oil and Gas (ASX: EOG) identifying a prospect on trend with AWE's massive Waitsia gas discovery, situated nearby. The Lockyer Deep well will target the Kingia formation, the same formation that was tested from AWE's Waitsia-1 well, flowing at an impressive 50.4 mmscf/d.
- EP413: Processing of the Arrowsmith 3D seismic acquisition is now complete, with results indicating a
  substantial improvement in sub-surface structural definition. Interpretation is ongoing, with a Joint Venture
  meeting scheduled with the EP413 JV partners for early February to finalise the work program for the year.
  DMP has approved a change to the EP413 work program further details can be found in the EP413 section
  of this report.
- **TP/15:** Whilst there is significant interest in the Xanadu prospect, the current state of the market is making it difficult to secure a farm-in partner. Norwest is currently looking at alternative ways to fund the drilling of the Xanadu well; a potential company-maker, with an unrisked prospective resource of 160 million barrels of oil.
- **P2265:** This permit is located in the Wessex Basin, UK. Reprocessing of historic 3D seismic data over the permit area is now complete, with interpretation continuing into this quarter.

Low oil prices continue to present the global oil and gas industry with many challenges. Norwest has a clearly defined strategy which allows us to continue to develop value in our exploration targets, whist utilising a disciplined approach to the financial management of the company to ensure we can continue to grow and develop the value of the company.

The aim is to future-proof Norwest to ensure it is in the best position possible to capitalise on the investment already made in the Basin. This will be achieved by ensuring funding is in place, having drill-ready prospects, and using best in class corporate governance and HSE practices.

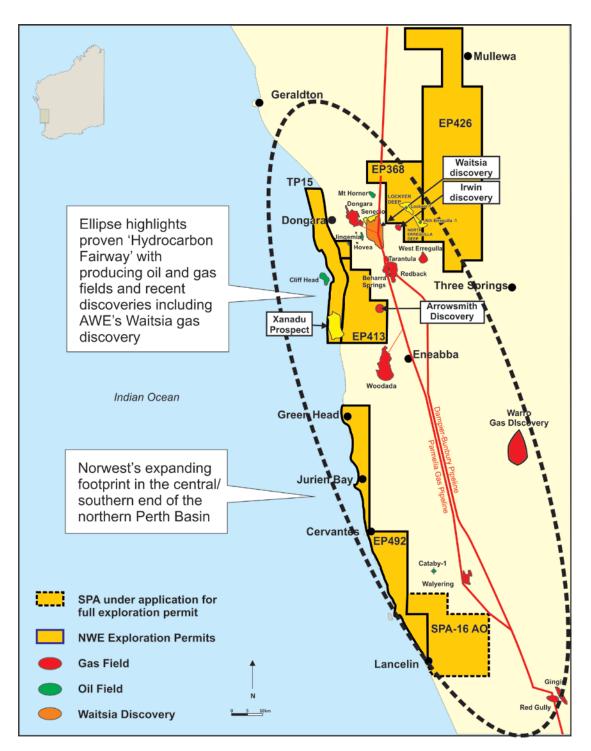
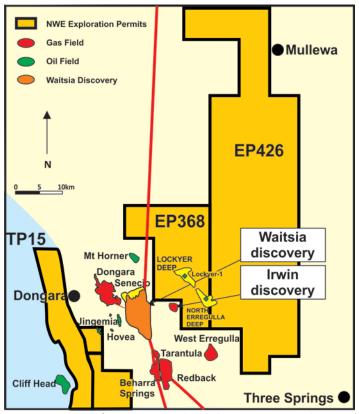


Figure 1. NWE tenements

# **Australian Exploration Program**

# **EP368 and EP426**



Operator Empire Oil and Gas (ASX:EGO) reports that the interpretation of the Black Swan Airborne geophysical survey is now complete, in addition to completion of the reprocessing of more than 400km of historical 2D seismic data.

An additional structure, North Erregulla Deep, located adjacent to Lockyer Deep has now been matured to prospect status at the Kingia / High Cliff Sandstone level.

North Erregulla Deep is located on trend with Lockyer Deep, and extends from EP368 into EP426.

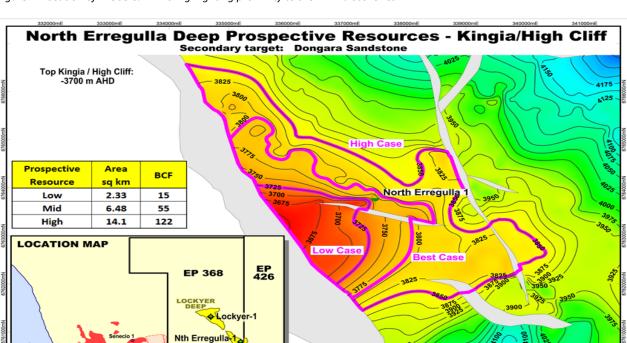


Figure 2. Location of EP368 & EP426 highlighting proximity to the AWE discoveries

Figure 3 North Erregulla Deep Prospect

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The Lockyer-North Erregulla trend was proved oil-bearing at the Dongara sandstone level by the historic North Erregulla-1 and Lockyer-1 wells, however the deeper stratigraphic levels of the Kingia and High Cliff Sandstone were not reached in these wells and so remain untested. These are the targets that yielded a recent major gas discovery at Waitsia in adjacent acreage to the west, operated by AWE Limited. AWE previously announced that the combined flow test results of the Waitsia-1 well from the High Cliff Sandstone and Kingia Formation totalled over 50 mmscf/d.

The extent of the Waitsia play into EP368 remains to be confirmed but the results of the recent AWE Irwin-1 well suggests that the Kingia reservoir fairway increases in thickness to the east and thus potentially into EP368.

Lockyer Deep is a medium risk well, targeting between 25 and 134 BCF, with a best case estimate of 58 BCF<sup>1</sup>. North Erreugulla Deep has estimated prospective resources of between 15 and 122 BCF, with a best case estimate of 55BCF<sup>2</sup>, and represents an immediate follow up prospect should Lockyer Deep-1 be successful.

The Operator, Empire Oil and Gas, reports that the Lockyer Deep well is expected to be drilled in the second half of 2016, subject to funding. During the quarter, Lockyer Deep well was approved as the commitment well by the EP368 Joint Venture.

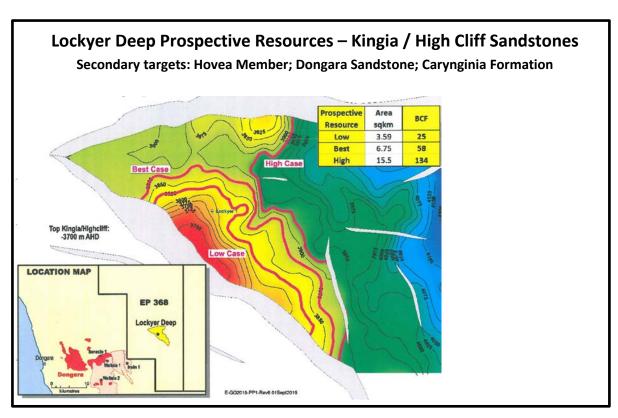


Figure 4 Lockyer Deep Prospect

- 1. Refer Empire Oil and Gas NL (ASX: EGO) Investor Presentation released to ASX on 2<sup>nd</sup> September 2015
- 2. Refer Empire Oil and Gas NL (ASX: EGO) Q4 2015 Quarterly Report released to ASX on 27<sup>th</sup> January 2016

The estimated quantities of petroleum that may potentially be recovered by the application of a 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.

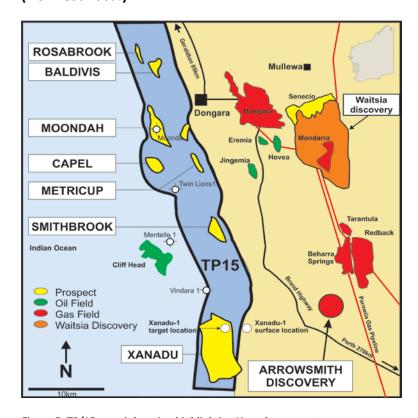
### **EP426**

Empire Oil Company (WA) Limited (Operator)	77.78%
Westranch Holdings Pty Ltd (Norwest Energy NL)	22.22%

#### **EP368**

Empire Oil Company (WA) Limited (Operator)	80.00%
Westranch Holdings Pty Ltd (Norwest Energy NL)	20.00%

# TP/15 (Norwest 100%)



During the quarter Norwest continued to promote TP/15 in order to find a suitable farm-in partner. Whilst current market conditions are making it difficult to secure any such commitment, interest in this block, and in particular the Xanadu prospect, remains high.

The current aim of Norwest is to keep the permit in good standing with the regulator, whilst continuing to seek a farminee, with the ultimate aim to drill the Xanadu prospect.

Figure 5. TP/15 permit location highlighting Xanadu prospect

As detailed in the ASX Announcement dated 29 October 2014, TP/15 contains a number of conventional oil plays, with primary prospect Xanadu having an un-risked prospective recoverable resource of 160mmbbls (best estimate).

#### The Xanadu Prospect – Technical Overview

Structurally, the Xanadu Prospect is a prominent horst block lying parallel to the coastline in very shallow water. Xanadu-1 will target Permian sands from a depth of approximately 800 metres. Near-shore sands of the Dongara Sandstone represent the primary target, with secondary targets in the fluvio-deltaic Irwin River Coal Measures and the regressive marine sands of the High Cliff Sandstone.

Retrieval and mapping of additional 2D marine seismic data has provided a comprehensive regional interpretation of the structural setting and charge history for the Xanadu oil prospect.

In estimating the recoverable oil volumes summarised in Table 1 below, a 50 per cent recovery factor has been assumed.

Table 1.

Un-risked Prospective Resource: recoverable volumes oil (mmstb)*				
Reservoir	Low estimate	Best estimate	High estimate	
Dongara Sandstone	3	12	22	
Irwin River Coal Measures	13	88	159	
High Cliff Sandstone	29	60	256	
Total	45	160	437	

<sup>\*</sup>The estimated quantities of petroleum that may potentially be recovered by the application of a 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.

# **EP413 – Northern Perth Basin**

# (Norwest 27.945%, Operator)

During Q2 CY2015, Norwest successfully completed the EP413 Arrowsmith 3D seismic acquisition survey on behalf of the EP413 Joint Venture. The survey was designed to assess the extent of the resource surrounding Arrowsmith-2.

During Q4 CY2015, the processing of the 3D dataset was completed, including pre-stack depth migration and fracture analysis.

Final results indicate a substantial improvement in structural definition, providing a greatly improved understanding of the geology within the permit boundaries, and with confirmation that the geology supports ongoing development plans for the permit.

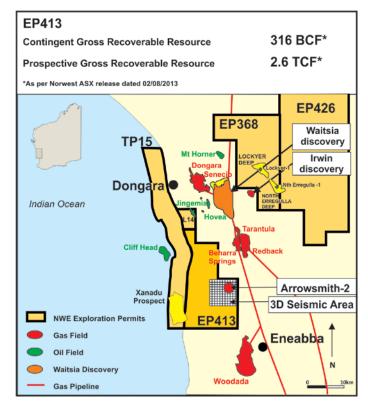


Figure 6. EP413 Permit Location Map

The main formations of interest from the Arrowsmith-2 testing are present throughout the survey area, with the fracture analysis indicating an increased presence of natural fractures to the southern end of the block (Carynginia Formation), meaning increased natural gas flow is likely from this area.

An unexpected outcome from the 3D seismic survey was the discovery of additional prospectivity in the southern end of the permit, named the Brand Prospect (Refer Figure 7). This area is approximately 7.5km south of Arrowsmith-2 on the north-plunging Permian anticline, located on the Arrowsmith-Woodada Permian Terrace. This prospect targets tight gas in the Kockatea, Beekeeper, Carynginia, Irwin River Coal Measures and High Cliff Sandstone, with conventional gas possible from the naturally fractured Carynginia. On the basis of similarities in structural form and seismic character with that seen further south over the Woodada Gas Field, there is also the potential for stratigraphically trapped conventional gas.

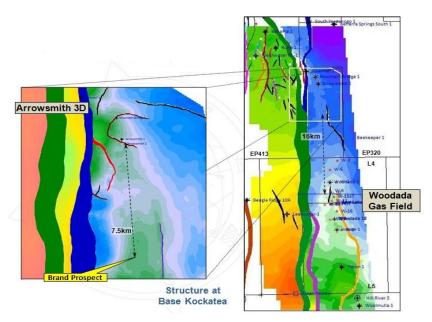
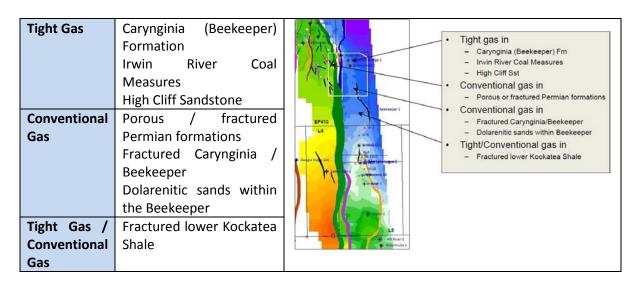


Figure 7. EP413 Brand Prospect

This new prospectivity in no way detracts from the reported shale gas potential of the permit, particularly as the shale formations are continuous throughout the block, however it presents itself as an additional opportunity to evaluate, particularly with reference to planning the optimal surface location for a well. As this is a new discovery within the permit, the Joint Venture is carefully evaluating this information, and will complete a detailed review and interpretation of the entire 3D seismic survey area to determine the best location for the upcoming well.

Due to this new geological knowledge, in mid-December 2015, Norwest and the EP413 JV partners made a request to the Department of Mines and Petroleum for a variation to the work program, to allow for additional time to evaluate this area. Due to the evidence of this new geological knowledge, approval was granted in early January 2016, such that Year 3 and Year 4 of the approved work program are now swapped, with the drilling of a well not required until Year 4 (commencing February 2017).

# **EP413 Hydrocarbon Plays - Summary**



Further work this year will fully assess the options for this highly prospective permit. A detailed inhouse interpretation is now underway, and an EP413 Joint Venture meeting is planned for early February to finalise the work program for the year.

#### **Rehabilitation Commitment**

Norwest completed the EP413 3D seismic survey in May 2015. This survey required the completion of the following surveys prior to approval to commence being granted:

- Level 1 flora and fauna habitat assessment (2012)
- Level 2 botanical and weed survey (2014)
- Aboriginal heritage survey (2013)
- Dieback survey (2013)

To complete the acquisition it was necessary to mulch vegetation to form vehicle access lanes, in a grid pattern with lanes approximately 400 metres apart. Vegetation was cut close to the ground surface, with the greenstock mulched – this method provides the best opportunity for rapid rehabilitation of vegetation. The botanical surveys completed previously were used to deviate the mulching lanes around significant environmental features including rare flora, waterways, rock outcrops, slow-recovering species and fauna habitat.

#### **Offset Requirement**

As part of the rehabilitation commitment under the EPBC Act, the EP413 Joint Venture is required to provide funding to the Department of Parks and Wildlife (DPaW) to purchase suitable land to offset the clearing of the black cockatoo foraging habitat, and to compensate for residual impact of the survey. Norwest is pleased to announce that DPaW has now identified a suitable 290 hectare privately-owned parcel of land containing abundant black cockatoo nesting sites and foraging habitat, which the EP413 Joint Venture will now fund the purchase of. The cost of the land acquisition will be less than had been previously estimated and approved by the Joint Venture in its work program and budget.

## **Monitoring Surveys**







Figure 8. Rehabilitation photos

The first annual rehabilitation monitoring survey was undertaken in November 2015 by botanists, with the reports due shortly. Images showing early regrowth on survey lines are displayed above.

#### **EP413 Joint Venture**

Norwest Energy NL 27.945% (Operator)

AWE Limited 44.252% (via subsidiaries)

Bharat PetroResources Ltd 27.803%

### **EP 492**

# (Norwest 100%)

Formal award of this permit occurred in November 2014.

EP492 has a six year term, with year one of the work program requiring geological studies to be followed in year two with a 2D seismic survey. A modest work program over EP492 keeps the commitment low so that focus can remain on the more advanced projects in the project pipeline during the current market downturn. During the quarter limited activity was carried out on EP492.

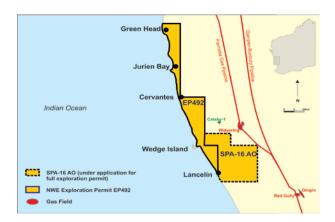


Figure 9. EP492 and SPA-16 AO Location

# **SPA-16 AO**

#### (Norwest 100%)

Norwest has applied to the Department of Mines and Petroleum (DMP) to convert the SPA to an Exploration Permit and has submitted a proposed six year minimum work program for consideration.

Before conversion of the SPA is approved by the DMP, Norwest has been requested to comply with the information requirements contained in the recently introduced "WA Petroleum Guidelines for Acreage Release – Criteria for Assessment". This work and application process was ongoing during the December quarter.

# L14 Jingemia Oil Field

## (Norwest 6.278%)

The L14 production licence contains the Origin Energy operated Jingemia oil field. The Jingemia project has now come to the end of its commercial life and has now been placed under care and maintenance, leading to eventual abandonment and rehabilitation. Jingemia is estimated to have initially contained 12 million barrels of oil in place, with 4.6 million barrels produced to date.

Timor Sea: AC/L6 - AC/P22 - Puffin

(Norwest 1.25%, ORRI)

No new information to report for the Quarter.

# **United Kingdom Exploration Program**

P2265 (Blocks 98/7b, 98/8a and 98/12a) - Offshore Wessex Basin

### (Norwest 65%)

Permit P2265 lies to the east of the producing Wytch Farm oil field in Bournemouth Bay in southern England.

The Pre-Stack Depth Migration is now complete, with a final report on the interpretation due for completion in early Q2 CY2016.

Norwest and HALO have two years to finalise the reprocessing and interpretation of the historical 3D seismic data, to select a drillable target and find a suitable farm-in partner.

At the end of this two year period, a commitment must be given to drill a well in the subsequent two years or relinquish the Licence.

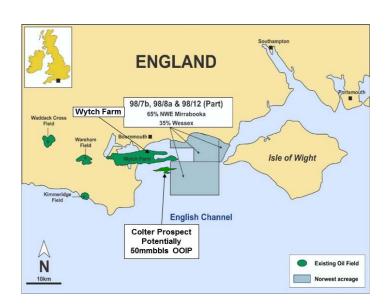


Figure 10. UK Permit Map

#### **P2265 Joint Venture**

NWE Mirrabooka (UK) Pty Ltd	65%
Hague and London Oil (HALO)	35%
(Administrator)	

# **Corporate**

# **Placement and Rights Issue**

During the quarter, a placement was made to clients of Argonaut Securities of 200,000,000 shares at \$0.0025 per share, raising \$500,000 (before costs). Subsequent to the placement, a fully underwritten pro-rata non-renounceable Entitlement Offer at \$0.002 per share to raise approximately \$820,000 (before costs) was also conducted. The offer was completed in the current quarter, with the remaining shortfall shares being issued in early January 2016.

Cash held at the end of the quarter totalled \$0.82 million.

Subsequent to quarter end, a further \$0.55 million was received (before costs of the fundraising), with these funds being the final proceeds from the underwritten rights issue. The cash balance at the date of this report is approximately \$1.2 million.

#### **Administration**

During the quarter, Norwest undertook a number of initatives that will result in a reduction in our administrative spend going forward. These initiatives included a combination of significant salary reductions and reduced working hours for both senior management and business support staff.

During the previous quarter, Norwest advised the ASX that Peter Munachen, Executive Director and CEO, was taking extended leave to attend to personal health issues. During this period Mr Munachen's annual remuneration reduced to \$144,000 (previously \$396,000 per annum). Mr Munachen has now returned to the role of CEO in a part-time capacity and accordingly has agreed that his annual remuneration will remain at \$144,000 per annum which will further assist in the continuing reduction of administration spend in future quarters.

## Issued Capital as at the date of this report

Ordinary shares 2,050,569,394 shares

Unlisted options 64,650,000 options

# **Petroleum Tenements – Interests**

Permit	Location	Type of Permit	Area (100%)	Norwest (%)	
NORTHERN PERTH BASIN					
EP368	Perth Basin, WA	Onshore	600.3 km <sup>2</sup>	20%	
EP426	Perth Basin, WA	Onshore	2360.0 km <sup>2</sup>	22.22%	
EP413	Perth Basin, WA	Onshore	508.3 km <sup>2</sup>	27.945%	
L14	Perth Basin, WA	Onshore	39.8 km²	6.278%	
TP/15	Perth Basin, WA	Offshore	645.8 km²	100%	
EP492	Perth Basin, WA	Onshore	860.0 km <sup>2</sup>	100%	
SPA-016 AO	Perth Basin, WA	Onshore	805.0 km <sup>2</sup>	100%	
TOTAL AREA NET TO NORWEST 3,100.1 KM2 (766,261.4 ACRES)					
TIMOR SEA					
AC/L6 (ROYALTY)	Vulcan Sub-Basin, NT	Offshore	252.1 km <sup>2</sup>	1.25% ORRI	
UNITED KINGDOM					
P2265	Wessex Basin, UK	Offshore	225 km²	65%	

There have been no changes to any permits or Norwest's interests in those permits during the quarter.

# For further information, please contact:

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### **Competent Person**

The information on the Xanadu prospect is based on information compiled by Mr. Dean Powell of Powell Seismic Services. Mr. Powell holds a Bachelor Degree of Applied Science (Physics) and is a member of the Society of Exploration Geophysicists. He has over 40 years of experience in petroleum exploration.

Mr. Powell has consented in writing to the inclusion of the information stated in the form and context in which it appears.