

# September 2015 Quarterly Report

30 October 2015



# **Highlights**

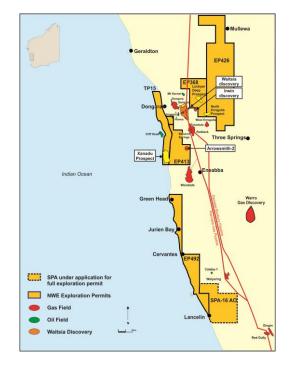
ASX: NWE

Norwest retains a large footprint in the northern Perth Basin, with highly attractive exploration targets optimally positioned adjacent to neighbouring discoveries, in particular to the significant AWE Waitsia and Irwin discoveries that have brought enormous focus to the basin.

Norwest continued to drive an active exploration and appraisal program in the onshore Perth Basin in Q3, with numerous permits currently being assessed for future exploration potential, including:

- **EP368:** The operator has identified a high impact near term drilling prospect targeting the Kingia formation, the same formation that was recently tested from AWE's Waitsia-1 well, flowing at an impressive 25.7 mmscf/d.
- EP413: Processing and interpretation of the Arrowsmith 3D seismic acquisition continued, with results indicating a substantial improvement in sub-surface structural definition.
- **TP/15:** Revitalised interest in the farm-in opportunity after presenting at the AAPG PESA deal day in September.
- P2265: Reprocessing of historic 3D seismic data continued over the permit located in the Wessex Basin, southern United Kingdom.
- Norwest continued to be active in engaging with industry, stakeholders and local communities.

Recent drilling success in the northern Perth Basin reaffirms Norwest's strategy of acquiring a large footprint in the basin and to remain focussed on progressing its optimally positioned exploration targets



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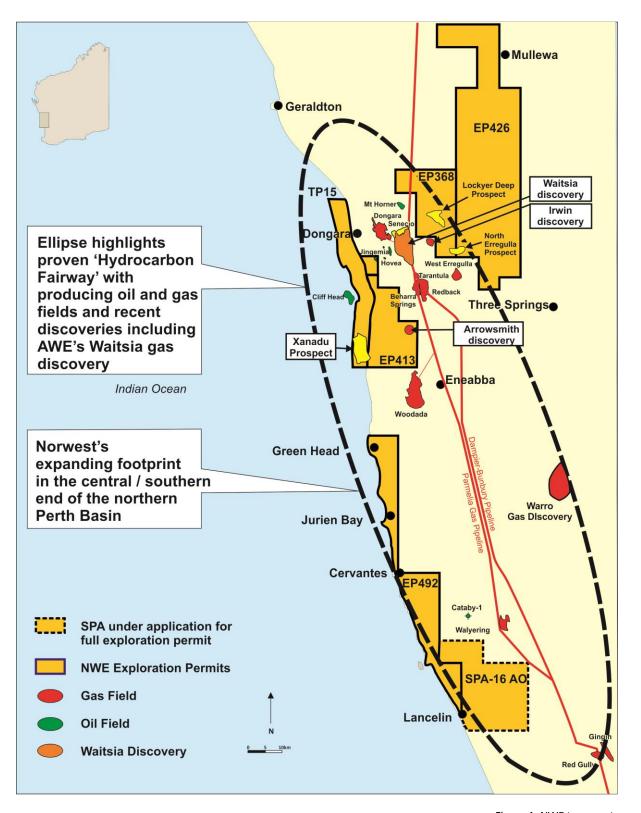


Figure 1. NWE tenements

# **Australian Exploration Program**

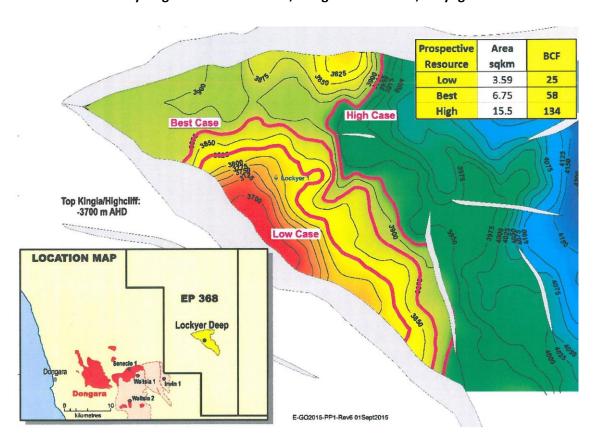
#### **EP368 and EP426**

During the quarter the operator of EP368, Empire Oil and Gas NL, advised Norwest that following the successful completion of the "Black Swan" airborne geophysical survey, it has identified an exciting, high impact, near term drilling prospect named Lockyer Deep.

EP368 and EP426 lie directly to the east of AWE's recent significant Waitsia and Irwin gas discoveries. Subsequent to quarter end, AWE announced the combined flow test results of the Waitsia-1 well from the High Cliff Sandstone and Kingia Formation totalled over 50 mmscf/d.

Lockyer Deep is a medium risk well, targeting between 25 and 134 BCF, with a best case estimate of 58 BCF<sup>1</sup>. This prospect will be targeting the Kingia reservoir fairway which has been identified following the recent drilling success by AWE at Senecio-3, Waitsia-1 and 2 and Irwin-1, all located in acreage immediately west of EP368. A new and significant gas play in the Kingia Sandstone has been confirmed in the northern part of the Perth Basin which will be further tested to the east of the play with the drilling of Lockyer Deep.

# Lockyer Deep Prospective Resources – Kingia / High Cliff Sandstones Secondary targets: Hovea Member; Dongara Sandstone; Carynginia Formation



1. Refer Empire Oil and Gas NL (ASX: EGO) Investor Presentation released to ASX on 2<sup>nd</sup> September 2015

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.

The extent of the 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.

The proposed Lockyer Deep well will also be used to appraise an attractive secondary oil target that was identified in both the Lockyer-1 and North Erregulla-1 historic wells where oil was encountered in the Dongara/Wagina sandstone. The Kingia Sandstone was not reached in either of these wells and so the deep gas potential remains untested, presenting an exciting opportunity for the joint venture to explore in the proposed drilling of Lockyer Deep.

The reprocessing of more than 400km of historic 2D seismic data in the vicinity of Lockyer 1 and North Erregulla 1 is nearing completion, with encouraging results expected to greatly reduce structural risk. The improvement in data quality is substantial and offers the potential for providing a significant improvement in the definition of the subsurface structure, thereby greatly improving confidence in selecting future drilling locations.

The operator has a contingent rig slot secured for the drilling of Lockyer Deep in mid 2016 subject to funding and government approvals.

Should Lockyer Deep be successful, there is immediate follow up potential at the North Erregulla prospect, located to the southwest of Lockyer Deep.

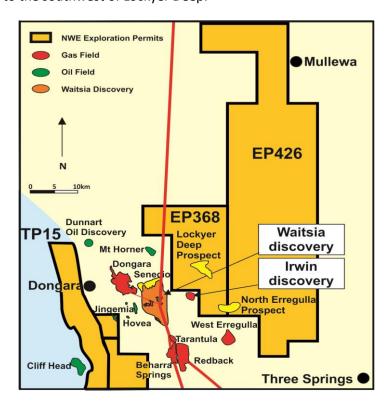


Figure 2. Location of EP368 & EP426 highlighting proximity to the AWE discoveries

#### **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 progress discussions with Rey Resources to agree on the terms and conditions under which Rey may earn an interest in TP/15. Subsequent to quarter end, Norwest also engaged with other companies interested in the farm-in opportunity following the company overview given at the recent American Association of Petroleum Geologists (AAPG) PESA deal day.

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**

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.

The structural mapping, which is based on good quality 2D seismic data, as well as high resolution gravity data resulting from a 2009 airborne 3D Full Tensor Gradiometry Survey, indicates the Xanadu Prospect is geologically similar to both the Cliff Head and Hovea structures, but significantly larger than both. On the basis of reliable seismic correlations, the stratigraphic section at Xanadu is expected to be very similar to that encountered at Vindara 1, seven kilometres to the north-northwest.

In estimating potential Xanadu hydrocarbon volumes, the reservoir parameter values observed in Vindara 1 have been the primary reference. Vindara 1, testing a rotated fault block, had only minor hydrocarbon shows. The failure of this well, and similar structural tests further north, is considered to be due to insufficient charge and/or breach of seal resulting from fault re-activation.

The Xanadu structure is considered to be more favourably located for hydrocarbon charge. Additionally, leakage on fault planes is considered less likely because of the interlocking nature of the fault network which gives rise to the Xanadu horst.

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.

The timing of drilling Xanadu-1 is dependent upon a range of factors including government approvals processes, rig availability and securing a farminee.

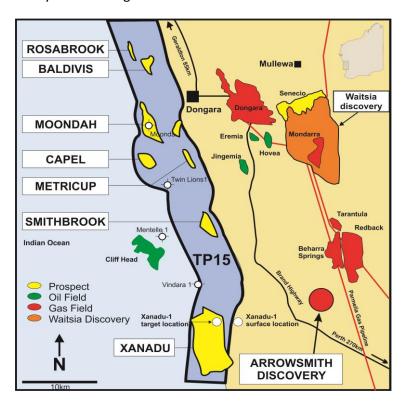


Figure 3. TP/15 permit location highlighting Xanadu prospect

# **EP413 – Northern Perth Basin shale gas exploration**

#### (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, and to assist in defining the optimal location and target formation for Norwest's first horizontal well, Arrowsmith-3.

During the quarter, the 3D dataset obtained from the acquisition program continued to be processed in the United States. Preliminary results indicate a substantial improvement in structural definition. Ongoing processing, which includes pre-stack depth migration and fracture analysis, is expected to be finalised during Q4 2015. Following receipt of the final dataset, a detailed in-house interpretation will be conducted which will allow the planning for Arrowsmith-3 to continue.

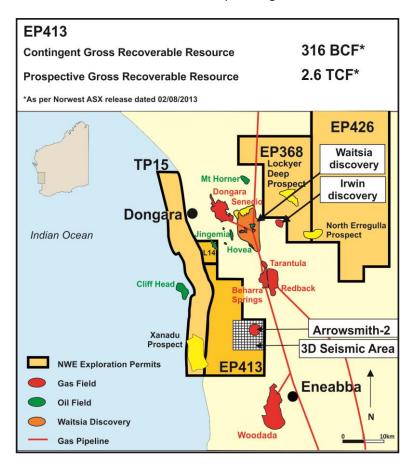


Figure 4. EP413 Permit Location Map

#### **Arrowsmith-3 Planning**

Preliminary planning with the co-venturers has commenced for Arrowsmith-3, planned for the 2015/16 permit year, with timing dependent upon equipment availability and the regulatory approvals process.

The final decision on surface location, target formation and lateral extent will be made once the 3D seismic survey processing and interpretation cycle is complete, as a clear understanding of the subsurface geology is essential to this process.

#### **EP413 Joint Venture**

Norwest Energy NL 27.945% (Operator)

AWE Limited 44.252% (via subsidiaries)

Bharat PetroResources Ltd 27.803%

## **EP 492**

### (Norwest 100%)

Since award of the block in October 2014, Norwest has undertaken data retrieval and interpretation of structural and depositional history of EP492 to assist with the evaluation of hydrocarbon prospectivity.

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.

During the quarter limited activity was carried out on EP492.



Figure 5. 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".

# 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)

The Puffin Field, which is located within AC/P22 and governed by Production Licence AC/L6, covers a combined area of approximately 900km<sup>2</sup>, and is situated in the Commonwealth waters of the southern Timor Sea. The Puffin Field is operated by Chinese major Sinopec Limited (60% interest) with AED Oil Limited (Subject to Deed of Company Arrangement) (AED - 40%).

Oil production from the Puffin Field ceased in 2009. Norwest still holds a 1.25% ORRI on any future production generated by Sinopec and AED from the AC/P22 permit area however any future royalty payments are highly unlikely given AC/P22 was surrendered by the operator in Q3 CY2014 and the AC/L6 petroleum production licence ceased to be in force with effect from 21 April 2015.

# **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 and includes conventional oil targets, with the ability for nearshore targets to be drilled from onshore.

The Joint Venture holds a significant dataset over the area including 2D and 3D seismic, and reprocessing of the historical 3D seismic data is currently being carried out in the United States. Time processing has been completed and depth processing is continuing. It is anticipated that this reprocessing will be finalised before the end of Q4 CY2015.

Immediately to the west of P2265 and straddling this permit is the Colter Prospect (in a permit operated by InfraStrata plc) which is estimated to contain 50 mmbbls oil in place. The reprocessing of the historical 3D seismic dataset will further assist in determining how far this prospect extends into P2265.

Norwest and HALO have two years to reprocess the historical 3D seismic data, 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.

#### **P2265 Joint Venture**

NWE Mirrabooka (UK) Pty Ltd 65%

Hague and London Oil (HALO) 35% (Administrator)

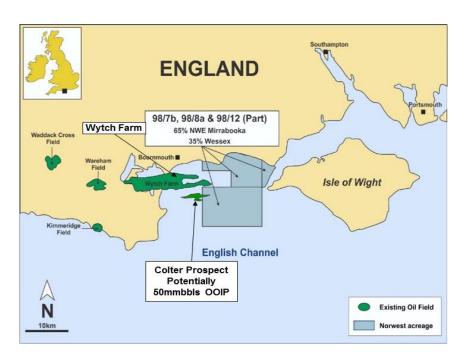


Figure 6. UK Permit Map

# **Corporate**

Cash held at the end of the quarter totalled \$0.74 million.

During the quarter, Norwest advised the ASX that Peter Munachen, Executive Director and CEO, is taking extended leave to attend to personal health issues. During Mr Munachen's absence, the day-to-day responsibilities of the role of CEO are being undertaken by John Annand, Norwest's General Manager – Corporate and Commercial.

### **Legal matters**

During the quarter Empire Oil and Gas, as operator of EP426, finalised the deemed withdrawal of Allied Oil and Gas NL due to that company being in default of its obligations under the joint operating agreement for the joint venture. Norwest holds 22.22 per cent of the permit.

### **Community Relations**

During the quarter Norwest participated in the Oil and Gas Expo, an event hosted by the Shire of Irwin to provide an opportunity for the local community to liaise directly with companies operating in the region. The event was well attended by companies, state and local government representatives, interest groups, service providers and members of the public.

## **CSIRO Perth Basin Research Program**

During the quarter Norwest became a founding member of a syndicate of companies working closely with CSIRO to undertake a baseline monitoring program in the onshore Perth Basin. The program is designed to establish environmental baselines associated with tight gas development and to effectively target monitoring of any potential impacts of such development.

### Issued Capital as at the date of this report

Ordinary shares 1,440,454,999 shares

Unlisted options 42,650,000 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 km²              | 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 km²              | 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.